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MEDICAL DEPARTMENT,
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ELEMENTS
OF
BEDSIDE MEDICINE
AND
GENERAL PATHOLOGY.

MITCHELL AND CO., PRINTERS, DUKE-STREET, LIVERPOOL.

MEDICAL DEPARTMENT,
YORKSHIRE COLLEGE,
VICTORIA UNIVERSITY

ELEMENTS
OF
BEDSIDE MEDICINE
AND
GENERAL PATHOLOGY,
OR,
GENERAL DISEASE-DISCOURSE,
WITH A SKETCH OF THE
ORIGIN, PROGRESS, AND PROSPECTS
OF
CLINICAL MEDICINE AND SURGERY,
FOLLOWED BY AN EXPOSITION OF THE
CREEDS OF MEDICAL MATERIALISM AND VITALISM;
AND
A CONFESSION OF MIXED MEDICAL FAITH,
ENTITLED,
VEGETABLE, BRUTE, AND HUMAN ORGANIZATIONISM,
ETC. ETC.

THE WHOLE CHIEFLY GROUNDED ON A DIGESTED RANGE OF SELECT ANALYTICAL AND CONDENSED TRANSLATIONS;
WITH EDUCTIONS FROM THE WRITINGS OF STANDARD AUTHORS, FRENCH AND BRITISH,
BY
J. STEWART THORBURN, M.D.

THE STUDY OF BEDSIDE MEDICINE is the complement of Medical Education: it is the *application*—it is the ART of all the branches of the Science. — *Leon Rostan.*

Concevrait-on aujourd'hui, qu'il ait fallu près de vingt siècles, pour savoir, que l'art de guérir ne pouvait être bien enseigné qu'au lit du malade! — *Serre.*

L'art du guérir ne s'apprend qu'avec les médecins et les malades. — *Chomel.*

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1836.

THIS VOLUME IS INSCRIBED,

TO THE

AUTHOR OF THE INFLUENCE OF TROPICAL CLIMATES
ON EUROPEAN CONSTITUTIONS,

PURSUIT OF HEALTH, TOUR TO THE HEBRIDES,
&c. &c.

SENIOR EDITOR OF THE LONDON MEDICO-CHIRURGICAL
REVIEW,

PHYSICIAN EXTRAORDINARY TO THE KING.

May a vigorous mind in a sound body, long be actively
enjoyed by him,
whose popular writings, and periodical volumes following each
other in phœnix-like succession,
have proved as a wall of vestal fire around the
awakening, as aroused rights, and republican interests, of his
profession;
and may the fruits of his classical mind long continue to
be disseminated,
with the spirit of universal medical literature,
throughout the peopled regions
of the
OLD AND NEW WORLD.

J. S. T.

Liverpool, 10th Oct. 1835.

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PREFACE.

It is by a faithful perusal alone of its subject-matter as a connected whole—not by an examination, however impartial, of its detached portions, that any literary production, and particularly one devoted to the exposition of scientific subjects, can be fairly estimated. Explanations, therefore, in respect of the *matériel* of this volume and the manner in which it is disposed, in connexion with the object for which it is submitted to the public, are confined to a few remarks of a very general nature.

By quarrying the chief facts and views contained in the subjoined range of select authorship, and working them up in accordance with a digested plan, I trust I have succeeded in architecting a literary edifice, which may be considered, in some degree, worthy, of being occasionally tenanted by the mind of the Clinical Student of this country.

I. *Séméiotique, ou Traité des Signes des Maladies;* par A. J. Landre-Beauvais, Professeur de Médecine Clinique, Médicin de l'Hospice de la Salpêtrière, Membre adjoint de la Société de la Faculté de Médecine de Paris, etc. *Seconde Edition . . . . Paris,* 1813.

II. *Elémens de Pathologie générale,* par A. F. Chomel, Médecin attaché au service de l'hôpital de la Charité, Agrégé en exercise près la Faculté de Médecine de Paris, Membre associé résident de l'Académie royale de Médecine, etc. *Seconde Edition.*

III. *Coup-d'Oeil sur les Cliniques Médicales de la Faculté de Médecine et des Hôpitaux Civils de Paris,* par

F. S. Ratier, Docteur en Médecine de la Faculté de Paris . . . . *Paris,* 1830.

IIII. *Cours de Médecine Clinique,* où sont exposés les principes de la Médecine Organique; ou Traité Elémentaire de Diagnostic, de Pronostic, d'Indications Thérapeutiques, etc. *Ouvrage auquel l'académie des sciences a décerné une médaille d'or;* par Leon Rostan, Médecin de l'hospice de la Vieillesse (Femmes), ci-devant Salpêtrière; Professeur de Médecine Clinique, etc. *Troisième Edition.* [The three volumes of the *Paris* Edition, in one.] . . . *Bruxelles,* 1832.

V. *Recherches de la Clinique, et sur la méthode à suivre dans l'enseignement de la partie chirurgicale de cette science;* par M. Serre, Professeur agrégé et Chef des Travaux Anatomiques à la Faculté de Médicine de Montpellier. ex-Premier Chirurgien, Chef interne à l'hotel Dieu de la même ville, etc. . . . *Montpellier,* 1833.

VI. *Clinique Médicale suivie d'un Traité des Maladies Cancéreuses;* par J. B. Cayol, Ancien professeur de Clinique Médicale à la Faculté de Médecine de Paris. *Paris,* 1833.

VII. *Guide pour l'Etude de la Clinique Médicale, ou Précis de Séméiotique*—Ouvrage posthume de Dance, publiè par un de ses amis . . . . *Paris,* 1834.

VIII. *Clinique Médicale de l'Hôpital Necker ou Recherches et Observations sur la Nature, le Traitement et les Causes Physiques des Maladies: précedés de Considérations sur l'art d'observer et de faire des observations en médecine,* par I. Bricheteau, Médecin de cet Hôpital, Membre de l'Académie Royale de Médicine, etc. etc. . . . *Paris,* 1835.

IX. *Traité de Pathologie générale,* par E. Fréd: Dubois (d'Amiens), Professeur Agrégé à la Faculté de Médecine de Paris, Président de la Société Médicale d'Emulation, Membre de la Société de Médecine de Gand —de la Nouvelle Orléans, etc. . . . (Deux forts volumes), *Paris,* 1835.

⁂ Standard Works by various other authors, con-

tinental and british, have also been freely availed of, as will duly appear to the reader.

The title page is intentionally—it may be said *necessarily*, copious. It embodies a just summary of the scope and prominent points discussed in the following sheets, which, together, constitute an aggregate of four parts consisting of twelve sections.

PART I.—Sketch of the Origin, Progress, and Prospects of the Clinique—will, I hope, be deemed useful and interesting to those, for whose notice it has been specially framed. In preparing it, the sources most freely gleaned from, are the dissertations of M.M. Bouillaud and Serre. After having formulated an extensive body of notes upon the subject, which grew upon my hands during a course of miscellaneous reading, M. Serre's pamphlet came into my possession. A hurried perusal of it, all but induced me to wholly abandon my then intention of putting the historical article, which had been previously redacted, into the printer's hands; and in lieu of it, to substitute a literal translation of the RECHERCHES. But upon a more careful perusal of the *brochure* just instanced, I found that though M. Serre had grounded his dissertation upon facts adduced by many more authors and commentators than had been consulted by me, yet still, the tendency or *drift* of his Essay, as interpreted, did not appear to bear upon several points of presumed interest to the clinical students of this country. I finally, therefore, determined to take M. Serre's compilation to pieces—so to speak, with a view to re-construct, under appropriately modified titles, an article embracing the gist of the researches previously noted, in addition to those upon other points more fully supplied, and it may be added—*guaranteed*, by M. Serre's more general, and of course more correct, acquaintance, with the french literature upon the interesting matter of investigation under notice.

Rendering due tribute to the excellency and interest of

M. Serre's "Recherches" is far from incompatible with the desire to render justice to myself, even if animated thereto by the most prurient selfishness, or self-sufficiency. I profess any thing but a wish to slur over, by the remotest indirection, the acknowledgments which are severally due to this author and to others, but in a particular manner to M. Serre: and, indeed, I conceive that any interest which may be felt by the student, in the proposed or actual perusal of the first part of the volume, will be by so much the more increased—not diminished, when duly advised, as hereby he is, that there is scarcely a prominent point in M. Serre's production, which is not turned to the best account my interim ability permitted; and, further, that in several entire pages I have *closely* translated his text, — but in no instance, it must be confessed, "*literally,*" in the literal or misapplied sense of the term.

And here, with a view to avoid iteration, in respect of the manner in which the publications of other authorities, cited, have been put to account, it seems expedient to state, that *this* conviction has been acted upon; namely—that the most *free* translations of french works—not excepting even those upon the sciences—are, virtually and without paradox, the most *literal.* Difference of idiom wills it so. At all events, with becoming deference to those who think differently, such a statement is, if erroneous, nevertheless not out of place, but for sufficient reasons called for, here. It surely is *ideas,* associated with facts, not "*words,*" which stamp scientific productions—nay, even the most ephemeral of mere literary common-places, with the signet of merit. Thus impressed, and having accordingly no desire to *do,* any more than to see the excellent ideas of foreign authors "*done,* into english" (to use the very suitable admission gracing the title pages of many "literal" translations not yet superseded), I have endeavored—first of all, to possess myself as clearly as possible, with the *idea* and bearing of the meaning of each writer, and, secondly, regardless of his mere voces et præterea nihil of *words*—to make each *idea,* in connexion with the facts of the matter in hand, take the form of expression which it should dictate, according to the state of the mind, and the suggestions of the memory of association, for the time being.

Any tedious prefatory infliction to Section I., has been avoided. Four pages only are occupied in cursorily possessing the reader with an idea, as to the nature of the obscure origin of the present stately edifice of the clinique. Guided by CHRONOLOGY—the sole trustworthy light in grappling with controverted points of history—the development of bedside medicine in different schools is immediately taken up, from its two grand epochs.

In the course of researches instituted to correct or substantiate particular statements—often so conflicting—of authors, I have been led to remark upon the manner in which the special merits of that deeply interesting nation, the Arabians, have been slurred over or disparaged. In order to strengthen the impressions hazarded in the second footnote at pages 11, 12, and 13, the collateral estimate by the able author of the article "Arabia, and Arabian Literature," in Mr. Partington's British Cyclopædia, has been quoted from. In fine, as regards Part I., as a whole, I have interwoven, where their introduction was judged appropriate, occasional eductions from the writings of Pinel, Rostan, Ratier, and others; and, more than once, particularly when noticing the ungenerous and perverted opinions, preferred by french critics, respecting the labors of the ornament of the school of Edinburgh, have appealed to the "Account of the Life, Lectures, and Writings of" CULLEN, by professor Thomson of Edinburgh.[1]

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[1] [In a few years, fifty senior students for one of that class of readers at present, will be advantageously acquainted with the comprehensive bearing of the miscellaneous contents of the work here adverted to. It is matter of regret, however, that its title unfortunately does not more fully apprize readers in ge-

To pass to PART II. In collating the materials of this as well as of the other parts, a leading object, observed throughout, has been to promote to the utmost, the student's advantage. Respecting various subjects of presumed immediate and collaterial importance to him, clues to further information are submitted, and in a way calculated, it is conceived, to excite rather than to satisfy his professional research.

The reasons prompting the exposition of the creeds of Materialism and Vitalism, with the unappreciated influence of Medical Faith and educational bias upon actual practice at the sick bed—the evils attendant upon loose and inexact phraseology, &c. &c., are duly commented upon. The exposition of M. Rostan's creed will doubtless be read with the attention which his views merit. His prolegomena are brought to a close, in nearly the following words:—"The principles succinctly developed in the *prolégomènes* constitute our medical creed. They are the philosophy of the clinical course which we have delivered, during the last past eleven years. Desiring only to see truth triumphant, we have seen all men animated with the same spirit hieing to our lectures; and we have obtained the most pleasing of all recompenses—approbation for our efforts. In the exposition of the doctrine, we have had no intention of wounding any one. In combating *errors*, we have, as far as possible, spared MEN. We demand the same justice for ourselves. Equally removed from the exaggerations of ancient doctrines and modern reforms, we have endeavored to steer clear of both. Having, to the best of our conscience, stated nothing but what we believe to be true, we hope that our junior brethren—more equitable than those who have

neral, of the interesting co-related matter with which the volume abounds, in connexion with the philosophical *examen* of the prominent theoretical and practical views of eminent predecessors and contemporaries, mapped out in keeping with those of Cullen—the great meridian mind of the time; and, in relation to which, their respective degrees of proximity are calculated and determined.]

grown grey in prejudices, will, by their suffrages, indemnify us for the injustices of party spirit. Free from the yoke of interest and ambition—exempt from preconceived ideas—they will recognise truth alone, whose firmest bulwarks they will be, and whose triumph they will, sooner or later, effect. It is to their impartial and severe judgment that we venture to appeal: in a word, it is for them we have written!"

It is for the reader to determine how far Section VI. (p. 191), merits perusal. It contains an exposition of the Confession of Medical Faith which I would respectfully be understood to profess. To myself there is this satisfaction attending its publication—it is submitted as it is entertained, conscientiously. No one, I apprehend, who gives the subject his attention, will deny, that a corresponding necessity exists for medical men in the present day, endeavoring to satisfy their minds, as to the grounds for the *medical*, as for all to inquire into the reasons for the *theological* FAITH, that is in them. However—

Quot homines, tot sententiæ.

The better to possess the reader with my ideas, such as they are, upon the complicated and confessedly trying questions mooted, several diagrams are introduced: *e. g.* of the forming of organization;—of life;—of vegetable and brute beings; and of the synthesis of man—a *trinity of attributes in unity,* &c. The analogical train of reasoning touched upon, is followed out as far as my limits permitted. Respecting the creed and its bearings, and the opinion which every man in his humor may be pleased to entertain of them, I may be permitted to leave the premises and exposition to their fate, in these words—addressed to critical readers—

Si quid novisti rectius istis
Candidus imperti: si non, his utere mecum.

As to PART III., and a portion of PART IV., no work in the english language, with which I am acquainted, furnishes junior clinists attached to our hospitals, with what may be termed a systematic guide for interrogating the sick. In Martinet's Manual of Pathology, materially enhanced by the excellent notes of its translator Dr. Quain, much useful information is afforded: and, in addition to the introductory lectures, hints, general and occasional, upon the mode of examining invalids, are interspersed throughout that pleasing volume—Armstrong's Lectures on the Practice of Physic, edited (1834,) by Mr. Rix. A hundred continental pens have discussed at great length, the important and neglected subject philosophically considered by M. Bricheteau. And an excellent article—"Interrogation," by Merat, will amply repay consultation, as will the perusal of the chief essay specially referred to, in the *Dictionnaire des Sciences Médicales.*

To obviate any necessity for a tediously long preface, the analytical table immediately following this sheet, has been prepared. It is here referred to, as furnishing a coup-d'œil of the contents of the volume, and of the relation of the sections and parts to each other.

With the current of the text, the conduct of different governments in patronizing, or standing aloof from, the cause of legitimate medicine and the pure independence of her FACULTY—are occasionally remarked upon, in connexion with the probable state of the profession, as influenced by the force of OPINION now *commanding* long deferred REFORM IN THE MANAGEMENT OF HOSPITALS, and of those nuisances of nuisances, the Dispensaries of Great Britain. The last-named institutions, in addition to directly marring (by the gross manner in which they are permitted to be abused) the success of the most efficient members of the profession—of those, namely, who have to stair their way upwards, as practitioners, from the indigent to the more opulent grades of the community, and otherwise degrading the caste of physicians and surgeons—as men of education and science—virtually prove as very hot beds in the production of general disease, which, to an inappreciably baneful extent, is disseminated by dispensing levees among the inhabitants generally, of all populous cities.

The information obtained of the hospital system and state of the clinique in America, has been deemed neither sufficiently extensive nor trustworthy to be commented upon at the close of Section I. (p. 40). Similar reasons have actuated the omission of a notice, which could at best have been but partial, of the *existing* clinical institutions of Britain and Ireland—although I was furnished with a general outline of the plan pursued in many of the large provincial infirmaries, through the kindness of various friends; and among others by that of Dr. J. Adair Lawrie, professor of surgery in the Andersonian University of Glasgow, by whose attention, in this respect, I feel particularly obliged.

PART IV. contains a compendious digest, not merely of the elementary views of the author chiefly followed—Chomel, but also of the writings of many of the most recent pathologists. The first volume of M. Dubois's General Pathology, just published, consists, chiefly, of a running commentary upon the second edition of Chomel's chastely and perspicuously written Elémens de Pathologie Générale. M. Rostan's "Symptomatologie," and the wholesale plagiarisms which chiefly constitute the alleged posthumous work of the zealous M. Dance, (published surely by any one but a "*friend*")—all bespeak the intrinsic excellence of M. Chomel's elementary work, which, for reasons stated by him in the preface to the last edition as not having been *superannuated,* has also not as yet been superseded by a better.

Finally, though satisfied that the portcullis of literary exclusion is not dropped, by the disciplined sentinels of public criticism, against any productions—especially those of an elementary character, if calculated to advantage the pursuits of the junior portion of the profession,—and also, that there is ever a disposition to merge or overlook, in the general summing up of their pretensions as a whole, any subordinate demerits, real or so considered, in respect of style or manner—yet in preparing this volume *with* and not *for* the press, I have principally encouraged myself with the remark here transplanted from the writings of old Glanville—

> Adventures in knowledge are laudable, and the attempts of weaker heads afford improvable hints unto better :—

A remark, which, to my mind, while it should, by its associations, warm the heart of every "old" critic with generous sympathy, ought also to cheer that of every "young" writer, when committing himself as identified with his views, to the judgment of the public.

J. STEWART THORBURN.

⁂ The special kindness of a much regarded friend—the author of the MODERN CAMBIST and other successful works upon Commerce and Finance, has laid me under a sense of obligation which it is an agreeable duty thus to acknowledge. Allusion is here made to the voluntarily undertaken revisal of the proof sheets of the work. In justice, however, to Mr. Tate's judgment and taste, it must be stated, that I am sensible that had *all* of his judicious suggestions been adopted, without exception or qualification, the style of the work would have been of a very different *caste*.—As to the Matter, the Manner, and the "Facts," I have not had the advantage of the hints, or "corrections" of any *medical* friend.

The style in which Messrs. Mitchell & Co. have printed the work, speaks sufficiently for the pains taken by them in their department. But, as no such palpable evidence of the readiness with which they met my suggestions, with their disposition to otherwise oblige, while the sheets were preparing for press, is apparent, I take this opportunity of thanking them for their attention in these respects.

J. S. T.

Liverpool, October 10th, 1835.

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PART II.

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VICTORIA UNIVERSITY

SECTION I.

THE ORIGIN AND DEVELOPMENT OF CLINICAL INSTITUTIONS IN DIFFERENT SCHOOLS.

The word *Clinique* has been generally adopted from the vocabulary of the french, the affix *que* not having been changed into *ic*, except by very few british authors. Strictly it is an adjective; but, by a license perfectly legitimate in a living language, it has been employed as a substantive. Its greek origin may easily be recognized in κλινη, signifying a couch, or bed; and by the CLINIQUE both french and british medical men designate, that particular and highly important branch of professional education, whose province comprehends whatever is witnessed at the bedside of the sick; in connexion with the true character, symptoms, progress, various modes of termination, treatment:—in short, of the actually observed history of disease.

As regards the origin and development of the clinique, it must be remarked, that if by such epithet be understood, simply the study of morbid affections at the bedside of the sick, the institution is as ancient as medicine: inasmuch, as from the earliest antiquity, there have been cultivators of the healing art, by whom patients were lodged, and pupils admitted, during the periods of visit. But if, as by some, the word be substantively applied only to regular and systematic hospital instruction, confided to professors duly charged with the initiation of pupils—the stream of time must be descended, as far as the second half of the seventeenth century.

There are clearly, then, two distinct epochas in the history of this mode of instruction. The first reascends to ages of ignorance and superstition, when the afflicted, stationed in temples and public places, petitioned from passers by, a remedy for the distresses by which they were aggrieved. Ancient history tells, that the streets and roads were frequented by the infirm, or their friends; with a view to compare the preferable experience and suggestions of travellers, whom frequent journeys through populous countries, had, as it were, necessarily rendered more empirically intelligent, than those of a more limited sphere of observation. Such was the primitive medicine of the Babylonians and Persians, by whom it was considered as by all eastern nations, a crime, not to afford every possible information to those putting questions in favor of relatives or companions, overtaken by sickness and distress.

Buildings appropriated to acts of worship and mercy, however, were the chief dépôts of the afflicted. Yet in the halls and Esculapian temples, in which the faithful enounced their vows and received encouragements, promising but often jesuitical, from the ministers of the god of health,—scenes were enacted which gave rise to mystical and superstitious ceremonies, rather than afforded the bases of a sound clinical institution. The healing art, in process of time, however, by little and little grew into something of a science, and was acquired by observations at the bedside of the infirm; the traditional communications of a master to his disciples; and those of a father to his children. So it would appear, were the results of the clinical information enjoyed and secretly transmitted from sire to son, throughout a long line of ancestry, and an incalculably extensive commonwealth of descendants, headed by the celebrated Asclepiades. Of the nature of the results of the persevering labor of this family, as noticed in the writings of the father of medicine, no one can read, or otherwise be possessed, without lively feelings of regret, that not a sentence or line of information, if ever extant, has reached us, explanatory of the mode in which, in these early days, clinical observation was conducted by a clan, from which the accumulated stores of medical knowledge, descended, by hereditary right, to the sage Hippocrates.

From every conceivable source of information, the old man of Cos, as Hippocrates in honor of his birth-place was styled, quaffed eagerly and deeply; and garnered up the stores of those practical acquirements, by adding to, and reflecting upon which, he trained others as he had taught himself. Had his judicious precepts only been imitated and religiously followed, MEDICINE would, speedily and steadily, havé made great progess; and the necessity for study at the bedside of the sick, in every succeeding age would have been more and more felt and responded to. But it was far otherwise. At his death, after which the monopoly of clinical instruction by particular families ceased, the public mind was engrossed and misled by hallucinations set afloat by false dissections, and by inferences from the most deceitful of all kinds of experiments—those performed on living bodies. The age assiduously studied, and harped upon garbled and misapplied quotations, riddled from crude systems of ephemeral philosophy, the secret of whose popularity consisted in those, as frequently in subsequent ages sufficiently near the passing hour, in their being, all but, if not utterly, unintelligible to their admirers. An epidemic mania prevailed, whose theme consisted in interminable dissertations on the nature of man, disease, and of medicines. Thus for generations, was the time of mankind vainly frittered away! Scarcely, says Sprengel, had Hippocrates pointed out the proper route to the followed,—"scarcely had he discerned observation to be the most solid foundation of ratiocinations in medicine, than misled by dialectic and frivolous speculations, the *gens de l'art,* pursued a false direction; and the sage mode of noting and writing out the histories of diseases, as records of bedside experience, retrograded into disuse." Philosophers, however, were not awanting, to perceive and warn their contemporaries of the consequences of their folly. Among the few truth-speaking and all-unheeded monitors, Plato was as conspicuous, as in the soliloquy of the Cato of our own Addison. Anxiously did the distinguished and earnest believer in the immortality of the soul, labor to awaken his fellow-sufferers to a sense of the inauspicious tendency of mediciners departing from the hippocratic route. This he attempted by introducing the subject into a dialogue, supposed to be carried on between Socrates and one of the wildest, but most popular visionaries of the time.[1]

More than a century of the Christian era had run its course, when Galen—one of those men, destined for a time to change the aspect of the sciences—revolutionized the domain of medicine. Amidst ideas successively promulgated by sectarian empirics, methodists, &c. by his superior genius aided by prodigious erudition, he, almost simultaneously, silenced every sect of them; and, in a few years, exercised the most unlimited dominion over the minds of his contemporaries. The physician-litterateur of Pergamos, unfortunately, however, allowed his imagination and the influence of scholastic habits of study, to outrun his judgment. As Pinel says—where he estimates him as a critic—"his works, far from clearing the way to observation, became text books for the controversies of succeeding ages; and more and more reduced to oblivion, the simple exercises of clinical medicine." Sinceram et masculam græcorum disciplinam hypothoesium fuco sytematumque illecebris inquinavit,—is part of the taunting language of animadversion, applied to him by a severe, but just continental critic, of the last century.

The clinique, hitherto, if it existed at all, could have been only applied to a few pupils, in private practice. On the authority of Mongez, who has made persevering and most elaborate researches upon the subject, HOSPITALS date not earlier than the fourth century.[1] What tends at least to strengthen, but surely it cannot, as some have insisted, be said to prove the truth of Mongez's opinion—is, that in the classic authors nearest the Augustan age, neither greek, nor latin denomination, nor periphrases even of any kind, occur, calculated to suggest the slightest idea, that hospitals then existed, similar to those of the present day.[2]

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[1] [Les progrès encore chancelans de l'anatomie et de la physiologie, l'etude assidue de la philosophie d'Aristote, et la manie de disserter sans fin sur la nature de l'homme, sur les maladies et les médicamens, attirèrent l'attention générale : et la sage méthode d'observer et de bien decrire les maladies finit par tomber dans une sorte de désuétude : il est curieux [*curious*!] de voir combien Platon, lui-même, fut frappé de ce changement malheureux, et combien il chercha à en faire sentir les abus dans un de ses dialogues entre Phedon et Socrate.

See the article "Clinique," in the fifth volume of the *Dictionaire des Sciences Médicales*, page 365.—The entire article redacted by Pinel, occupies, with the Bibliography, only seven pages !]

Tacitus expressly states, that after the fall of the amphitheatre of Fidenum, by which fifteen thousand individuals perished, or were dangerously mutilated, the wounded were carried into the houses of private citizens. Sorts of infirmaries, however, for wounded or sick slaves, were attached to the houses of the Roman grandees. Halls or wards, too, existed in many of the Roman temples, for the reception of sick strangers, whom the exciting games, or solemn festivals had attracted within the walls of the eternal city.

Associated with the epoch of the creation of hospitals, the school of Alexandria, and that of Dschondisabour,[3] in Persia, with several others, rise to the remembrance of historians. Both were remarkable in this: their sites very closely adjoined those of the hospitals! Though this fact does not confirm, yet it strongly encourages the inference, that the professors of the seminaries of medicine respectively named, had already perceived the sterling and blessed use to which such proximity might one day be turned. Hospitals, it would seem, were originally instituted exclusively as means for gratifying the ostentatious, or ministering to the really pious benevolence of their founders. It could scarcely have been otherwise than expected, that physicians would have perceived how materially such institutions, under proper management, might contribute to the steady advancement of medicine as a science and as an art. This, however, was either not perceived; or, if perceived, was unhappily considered as of subordinate importance.

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[1] [MM. Percy and Willaume believe, (on what grounds?) that the most ancient hospitals existed towards the third century. M. Serre at page 14 of his "Reserches" suggests as a memoir on this res vexata—*Had the ancients public establishments for the relief of the indigent?*]

[2] [The word *hospitalia*, M. Serre observes, qui est très-latin d' après l' autorité de Vitruve, ne pourrait être traduit dans notre langue [or into english] qu' en le détournant du sens que lui a donné cet architecte.]

[3] [The name of this ancient town, which was reduced to ashes, I believe, at the fall of the emperor Nisapour's dynasty, is very variously given by redactors. Thus, M. Pinel spells it 'Nisapour'; *Dictionaire des Sciences Médicales*, vol. v. page 365:—Dr. Thomson of Edinburgh, 'Gandisapara,' *Life of Cullen*, page 103:—M. Serre 'Dschondisabour'; *Reserches sur l' Origine de la Clinique*, page 14.]

Among the early of what may justly be termed the hospital-schools, that of Alexandria, in Egypt, was for a long time so celebrated, that on the authority of Amien Marcellin, to have attended it assiduously, conferred every right to practice medicine. From this period hospitals gradually approximated to the subservance of a two-fold, and far from incompatible purpose: namely, ministering to the wants of the sick, thereby fulfilling the chief purpose of their supporters; and also as schools of medical observation and instruction. The hospital of Dschondizabour was of this nature. Though less celebrated, yet it was, in all probability, greatly superior as a well-conducted infirmary, to that at Alexandria. It was a professed school for the cultivation of clinical medicine; and its incalculable utility, was a source of pride and honor to its imperial founder, infinitely transcending any minor, though more bruited fame, enjoyed by preceding or contemporaneous halls of mere scholastic learning. Greek physicians discharged its duties, and Hippocratic medicine was revived and propagated throughout the nations of the East. It continued for ages the common centre of medical erudition, in connexion with practical experience.

A new school, instituted at Bagdad, was, by command of the famous Almanzor, stocked with medical superintendents approved by the officers of Dschondizabour, whence, without doubt, was disseminated far and wide, the merited repute of Rhazes, Ali-Abbas the Wise, and the most noted of the Arabians. A question of considerable collateral interest presents itself, which must be glanced at, and here glanced at only,—in connexion with the progress of bedside medicine, as influenced by the civilization, benevolence, and public spirit of nations. The point in question concerning which shades of difference, and much contrariety too, of opinion, would seem to prevail, is, whether or not the claims advanced on behalf of the Arabians be well founded, to the merit of having first instituted hospitals in close connexion with seminaries of medical learning? This honor which has been assigned to them, cannot, M. Pinel asserts, be either justly contended for, or ceded to the Arabs. Yet the author of the *Nosagraphie Philosophique* adduces neither dates, names, sites, nor authorities, in support of his questionable inference![1] Could any have been, or can any now be cited, which would be considered so far trustworthy, as to incline either way, the scales of so conjectural a decision? Whether the idea or proposition in question, originated, with the Arabians, needs not be dwelt upon. From the multiplicity of establishments subserving a two-fold purpose, successively instituted in the wake of their conquests and dominion; and the erection of which was effected by that active benevolence, whose practice was urged by Islamism upon her votaries, there can be little doubt, that waiving the merit of the *idea*, the Arabians are at least entitled to the entire credit of having been the first, who practically made the conception or intention, take the useful form of action.[2]

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[1] Pinel's words are " on doit remarquer que les hôpitaux s'y trouvaient rapproches des écoles de médecine, avant les temps des Arabes, auxquels on attribuait ordinairement l'honneur de cette heureuse idée."

[2] [It seems certain that very many authors, particularly the French, have got into a sheep-track, and uninquiringly followed one another in a narrow-minded estimate of this people.

The history of what nation, taken all in all, is so inviting to the philosopher, the scholar, and the physician? How many national and pleasing associations, must be set afloat in the mind if a few even of the many parallelisms between the characters of the ancient and modern Arabs, and highland Scotch, be traced or observed, however cursorily! Both were animated with a similar irrepressible and determined love of independence, stern justice, and liberty;

Under the protection of that noble race—the Saracen-Moors by whom Spain was overrun, celebrated hospitals

the same habits, too, prevailed among them of generous hospitality, "reiving," and clanship: and, like the native Caledonians north of the Grampians, whose knees never cringed to a foreign invader; so, the Arabians for upwards of a thousand years, defied not only the disciplined armies from Babylon, and the capitals of the east,—but refused to submit to the terms offered them, by the civilized generals of the pupil of Aristotle; by whom, however, their lowlanders (greatly to their advantage!) were subdued.

These wars with the Arabians exercised the most immediate influence upon the progress of empirical surgery.

The Arabs, also, could boast of an Ossian: and, even Goldsmith had his fellow in a predecessor by many centuries—the poet Lebid! Indeed so close is the parallel here, down even to the composition of an elegy depicting the feelings of a person, just returned after a long absence to the place where the years of his childhood had been passed—that had the Arabian "Deserted Village," by Lebid, been accessible in an English dress prior to 1796,* some of the Doctor's puny critics—detractors rather—would have encouraged the strongest suspicion, that he had stolen his finest thoughts, from the specified productions of him, who disputed with Mohammed the vast influence exercised on the minds of his countrymen, by POETRY; and, above all, by the *poetry of facts, or of induction*, which constitutes, may it not be said, as admissible an approximation to a logical definition, as any of the many hitherto offered, of what is describable only, viz.—PHILOSOPHY?

To the medical psychologist, it is far from without interest and advantage, to note, that the perversion and abuse, even, of Arabian poetry as etiological influences, proved much less mischievous, and rendered fewer childish minds unsound, than have the mawkish novels, and aberrational fictions of more modern times.

Nor is this all. The few Arabic annals extant, as far as their contents have transpired, are of absorbing interest to the educated physician. From myriads of operative causes, they throw a flood of light upon the progress of various departments of Medicine. For instance, as respects Chemistry, preceded by that visionary labor, scarcely now appreciable—it is sufficient to merely name *Alchemy*. And farther: in closest connexion with the conquests of the Saracens, whose destiny in being driven from Iberia, pervaded by them for so many centuries, and without retaining land, even sufficient for a sepulchre, which could be used and styled as their own, present altogether one of the most unique and extraordinary vicissitudes in history,—the medical inquirer will find, how signally the progress of general and Clinical Medicine was advanced, under the fostering superintendence of the career of that fierce but intellectual people, all along the patrons of letters and the Augustus-like protectors of learned men.

Upon the whole then, estimating not their intentions, but results, in hording the treasures of ancient learning tided to them from Greece in the eighth cen-

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* [The date of the publication of *Specimens of Arabian Poetry from the earliest time, to the extinction of the Khaliphat*; by J. D. Carlye, Chancellor of Carlisle, and Cambridge professor of Arabic, 1796, 4to.]

and universities sprung up, in the bosoms of the opulent cities of Seville, Toledo, and Cordova. Thither in crowds thronged welcomed physicians from various faculties in Europe; somewhat as Pythagoras, and the lovers of wisdom of old, sought the halls of the Ptolemies, in quest of exotic knowledge, and enjoyed the king-like encouragement of that race of monarchs, peerless as intellectual.

tury, far from meriting such indiscriminate vituperations as have been showered upon them, *What science or art*, it may be asked, *is not enduringly obliged to the Arabians*, despite of the contrary assertions of the fertile-minded, but ingrateful-hearted Petrarch and Boccacio? both of whom, without doubt—hinc illae lachrymae—plagiarized without either mercy, or honest acknowledgment, from a poetry to which, on the re-awaking of literature, *they* owed, not every thing, but yet how much!

As regards MEDICINE:—" at the commencement of the *ninth* century, the Arabians were acquainted with the medicine, philosophy, mathematics, and natural history of the Greeks; *they possessed translations of Hippocrates, Galen, Theophrastus*,"—[the father of philosophical BOTANY; and surnamed, on account of his eloquence, THE DIVINE SPEAKER] " *Ptolemy, Euclid and Aristotle.*"

In fine: so great was the catholic good effected by them, and in hiving and delegating which, the Arabians were the repositories and the agents—that far from meriting the opprobrious strictures lavished in no niggard spirit against them, their merits, even as copyists, are beyond all praise. But, indeed, for their assiduous multiplication of manuscript copies of original works in medicine, philosophy, algebra, &c. the vicissitudes and excesses of heated conquest and ecclesiastical bigotry, as by Zegri and Cardinal Ximenes, would have left " not a wreck behind" of the valuable lore of the Greeks.*

Were such, then, their sole claim upon our regard and the thanks of posterity, should it not be said, that the Arabians proved to MEDICINE, to PHILOSOPHY, MATHEMATICS, LITERATURE—even as a *Noah's Ark* of preservation, when each and every department of general science, throughout a dreary night of centuries, was deluged in the sleep of the dark ages? A sleep, too, which, but for the inadequately appreciated services of that unjustly reviled nation, would have been the sleep of DEATH, instead of *hybernation*.]

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* " The bigoted ecclesiastics destroyed their writings with the same zeal which led Pope Gregory to destroy Livy. Cardinal Ximenes burnt, at once, *five thousand* splendid volumes; and according to another historian, no less than *one hundred and fifty thousand* volumes were destroyed by Zegri, a Moor converted by force. In consequence of this wanton destruction, when Philip II. founded the Library of the Escurial, he was unable to collect for it, more than 300 Arabic manuscripts. The great store of Arabic learning afterwards added to it, was derived from a capture made near Salee, in 1611. Two Moorish vessels, having on board the King of Morocco's library, were seized by the Spaniards as they were about to enter that port, and by this adventure, 3000 Arabic MSS. were added to the collection of the Spanish Kings. More than half this treasure was destroyed by the fire which burnt down the Library of the Escurial, in 1671."—See Partington's *British Cyclopædia*, 1834, Vol. I. p. 137.

It was in such hospitals, that the already named Ali-Abbas is said to have collected the bulk of his observations: and as the poet of the Elizabethan age counselled the authority-ridden of the time, to look rather with their own eyes, than asquint at nature, "through the spectacles of books"—so did the shrewd discriminating Mahommedan urge it upon every practitioner, as a duty paramount, to frequent the great hospital-schools, there to independently observe, how little a variety of maladies, as apocryphally described in books, conform to the revelations of NATURE, faithfully and cautiously interpreted, through the medium of the obscure hieroglyphics of symptoms and signs.

The majority of physicians, during the epoch, or era rather, under notice, practiced and taught medicine in the hospitals of benevolence, founded throughout Asia and Spain by the descendants of the camel-driver and the children of the desert; in whose placid and yet susceptible hearts the Koran of Mohammed, has been engrafted, and still buds as a cherished stem-stay and very germ of their being.[1]

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[1] "Spain was the country in which the harvest of Arabian literature was crowned with the richest abundance..... It was there that the civilization of the Arabs, or rather of the Mohammedan world, reached its utmost limit.

"In the early part of the tenth century, the University of Cordova was founded by Alhakem, the Maimoun of the west. The private library of this prince contained, according to some Arabian writers, no less than six hundred thousand volumes, the catalogue alone extending to forty-four. This example was sedulously followed by his successors, so that an endowed college was ere long to be found in every town in Spain, and no less than seventy public libraries were open, in that kingdom, at a time when all Europe besides could not boast an equal number.

"The literary ardour of the Moorish princes continued as long as their political independence. They were the zealous patrons of learned men, so long as the weakness of the Spaniards left them scope and leisure to pursue their inclinations. The care of literature was with them a part of the kingly office, and many of them paid more attention to the interests of letters than to affairs of state. Spain, under the Moors, produced unquestionably more royal authors than any other age or nation in the world. The courts of those princes resembled academic meetings, in which the sovereign conversed on a footing of equality with his accomplished associates. The successful orator, or poet, was rewarded with the ring, or shawl, or pelisse of the caliph, who placed it on him with his

But the influence of the admiration, which, as was said, not the intentions, but the results of the labors of this deeply-interesting nation, command, must be used, not abused. And if it be inquired, what fruit was harvested from their favored position, luxuriant in opportunities, truth, with the checking force of facts, extorts the statement, that the bankers, or custodiers of the deposits of learning, throughout "Araby the blest" and its dependances, were sciolist-bookworms only. They seemed overweeningly devoted to the sterile example set them by Galen. For ages, a truly detrimental influence continued rampant. Therapeutics were enslaved by bizarre farragoes; and a considerable time elapsed, ere the minds of physicians became sufficiently aroused, by consciousness of the nature

own hands, and treated him with the familiarity of a friend. The politeness of the court was gradually diffused abroad, and the people, as in most other cases, soon followed the example of their rulers, so that literature became the fashionable employment of all classes..... Hadji Khalfa, who lived in Constantinople in the seventeenth century, was able to form a catalogue of nearly twenty thousand authors, the majority of whom were Arabians; the works, however, of only small proportion of these are known to be in existence. But the remnants of Arabian literature, which are still preserved, sufficiently testify the extent of its cultivation. *Encyclopædias were an Arabian invention.* These, with dictionaries of every kind, and repertories calculated to abridge the labour of erudition, evince the existence of a very ample literature."

" The conquest of Toledo, in 1085, was the event which contributed in the greatest degree to increase the opportunities of improvement. It brought together French, Spaniards, and Moors, to live under the same government, and in a city long famous for its learning and refinement. This then is precisely the brilliant epoch, when the genius of Europe, kindled by the contact of Arabian cultivation, first blazed through the darkness of general barbarism. William, of Poictiers, the first Troubadour of whom we know anything, accompanied Alphonso in his expedition against Toledo. .... Few of the Troubadours omit to mention the princes of Aragon and Castile. They speak of them as of the natural protectors of men of letters; and to visit the Spanish courts is always a part of their poetical instructions.

" The superior knowledge and civilization of the Moors, was long acknowledged by the Europeans. Their schools of science were frequented by Christians in the tenth century, when the monk Gerbert, raised afterwards to the papal throne with the name of Sylvester II., studied at Seville."

" Although the language of the Moors was never wholly forgotten in Spain, yet, from national antipathy and religious prejudices, their literature seems to have been" [after the destruction of the Escurial] " most neglected in the very country which it formerly illumined."—*Op. Cit.*

of their position, to have the way thereby paved towards being emancipated from the illusions encouraged by the Arabian polypharmacy.

Although fashion enslaved the million, and in medicine fashion has prevailed, as in dress, opinions—everything, yet the unrectified evil, as in matters political, wrought out its own cure. Endless discussions arose, hinging upon childish frivolities. Everything seemed easier than to zealously study, and master the *histories* of maladies. Disgust drove several to travel to Italy and France, whither the receding tide of literature had for some time been setting. But there, too, by the wretched subtleties of the schoolmen, medical orations rapidly dwindled into all but utter insignificance. Unmeaning commentaries were effeminately lisped, not upon the tangible—the only becoming element for even the unrestrained indulgence and mental swimming of a people and a philosophy alike in swaddling-bands—but upon the most abstrusely intricate doctrines which were literally metaphysicised into non-entity. The men of judgment, as they styled themselves, selected some article as a text for prelection, from the works of Avicenna, Rhazes, and others, which was read aloud *to* rather than *for* public admiration. Hippocrates's aphorisms were quoted, not as exercises of the understanding, to provoke an improving tone of independent and critical thought; but were delivered *ex cathedrá*, as if from the infallible oracle at Delphos, and therefore, to have presumed to dispute them, would have been construed and scouted as medical heresy.

The number of hospitals, nevertheless, everywhere increased. To such an amount, indeed, from this period onwards was their multiplication carried, that the attention of the inquirer is naturally quickened, to closely watch the instantly expected evolution of Medicine stably grounded on its only true foundation—the observation of clinical facts, and the collection of instances.

The period, however, was any thing but at hand, for such expectation being realized. Appearances at first were big with promise. The show of blossom was profuse; yet there was little or no fruit. Ephemeral only was the duration of a much needed much desired convalescence, marked by a disposition to return to the sound mode of appealing to observations at the sick-bed. An utter relapse set in: and again for nearly two hundred years, was the seemingly resuscitated healing art, not so much drowned as stifled in a muddy torrent of incoherent verbiage. Disciples acquired from their masters, nothing but a heritage of chimeras. How could it be otherwise, when the most subtle and metaphysical distinctions in the voluminous works of the Scholar of Pergamos, were passionately conned over by a party which absconded from the perusal of the VOLUME OF NATURE, that their time and energies might be misapplied, as they were, in fabricating premature "Systems" in their closets! And when another sect of fanatics, still more numerous, entered upon a series of commentaries, which, far from throwing light upon, only rendered more and more obscure, what was sufficiently opaque in the dark passages of original manuscripts, which served as culminating points for prurient controversies, redolent of nothing but dotage! The sages of the time conceived labor thus expended, to be most judicious and expedient. By not a few it was cheerfully undertaken as a medium of party or self aggrandizement: and to such a pitch was the infatuation of the age carried, that a perpetuity of fame was believed to be effectually secured, provided they could but refute the arguments of their opponents; and thence, by clearing the way, force open for themselves a channel, through which, at will, to unsluice upon their astonished contemporaries, the outpourings of a professional erudition presumed to be perfectly irresistible. Such is any rather than an exaggerated representation of what seems to have been the condition in which MEDICINE continued, from the beginning of the fifteenth till towards the expiration of the second quarter of the seventeenth century.[1]

So far as the origin and progress of the FIRST EPOCH of the Institution of the Clinique has been sketched, it has been less or more clearly shown, that, as a branch of instruction, clinical medicine originated in the temples, gymnasia, civil practice;[2] and more recently in the houses of refuge founded by Christian and Mohammedan charity, in behalf of the unfortunate: and, farther, that hospitals at first served rather to satisfy real or dissimulated benevolence, than to perfectionate medicine.

In every reflecting mind, a retrospective view of what has been submitted can scarcely fail to call up a train of kindred associations, in connexion with such queries, among many, as here suggest themselves. In respect to the past, how comes it to have ever been—and as regards the present, and the future—why should institutions the most useful to the human race, remain so long in a state of infancy? To all unacquainted with the nature of man, and the circumstances connected with the pervading influences of Poetry and Philosophy upon the character, conduct, and civilization of Nations, it must appear in the highest degree surprising, if not inconceivable, that very nearly two thousand years, as M. Serre exclaims—"should have been required to make it known, that the healing art can only be well taught"—where too, it can alone be properly acquired—"at the bedside of the sick." Life is, indeed, short, and art is long, as was truly observed by the ancient sage!

[1] [Compare the estimate of M. Rostan; *Prolégomènes*, p. 44, tom. I. "Traité Elémentaire de Diagnostic:" also of M. Pinel, *Op. Cit.* And M. Serre "Reserches," p. 15. Various other authorities referred to might, if necessary, be cited.]

[2] [As we may infer from one of Martial's epigrams, in which the poet thus hits off an ultra-enthusiast at Rome, who annoyed his patients by visiting them several times daily, accompanied by all his pupils; and by whom, as satirically represented, the sick were "*manipulated*" in succession!

> *Languebam:—sed tu comitatus protinus ad me*
> *Venisti centum,* Symmache, *discipulis.*
> *Centum me tetigere manus, aquilone gelatae,*
> *Non* habui *febrem,* Symmache,—nunc habeo!]

SECOND EPOCH OF THE CLINIQUE.—Descending the the stream of time, we come upon the second epoch of the clinique, which dates from a little before the middle of the seventeenth century. By the collated testimony of several chroniclers, clinical establishments now existed in, and were forthwith in active operation throughout Holland. Upon the recorded assertion of Kyper, who wrote in 1643—the most flourishing and celebrated of these, was that at Utrecht, superintended by Straëten. About the same period this mode of instruction was introduced at Leyden by Othoe Huernius. This great man—great among a thousand, is entitled to the merit of having been the first to teach bedside medicine upon a comprehensive plan. That his clinique was admirably conducted is indisputable. After examining and questioning patients in presence of pupils, he expatiated on the nature of their diseases, and gave reasons, often wrong, perhaps, yet how much better than had none at all been assigned for the mode of treatment to be adopted. He moreover caused inspections of the body after death to be carefully made: and, in addition, exercised his disciples in the knowledge and preparation of medicines. Was not that a *system* of clinical instruction? Had the father of modern physiology only compared the statements of others,—had he been, in respect to names, as unbiassed in his praise, his censure, or his *silence,* as he was to facts and theories, true and apocryphal, in physiology—never surely would he, at the expense of Heurnius, have eulogized FRANCIS DELABOE as the "founder" of the "true" clinique? By viewing the matter in its entire bearing, as shall here be attempted so far as data and cautious inference warrant, even-handed justice, only, will be rendered to the different parties to whom, severally, merit is due; as unprejudiced individual inquiry, if exercised, will tend, it is conceived, to farther satisfy all interested.

Haller then had grounds—grounds enough and to spare, for praising Delaboe. Either, however, he unintentionally overlooked, or viewed *too coldly,* the prior claims of Straëten, and the general pretensions, more particularly, of Otho Huernius—without doubt the *founder* of the systematic method—which is every thing—of prosecuting the practical duties of the clinique; making, as Huernius did, observations conducted during the visit *in presence of pupils,* the basis for his conversational commentaries, and of his subsequent explanations in detail. But Delaboe did more. In addition to improving upon the plan of Huernius, he was the first to *publish* to his medical brethren at large, a connected series of bedside observations,[1] with sensible remarks. Therein consist his real—his unquestionable titles to praise. Haller's eulogy, then—Auctor curandorum coram studiosis aegrotorum in nosodochiis, in docendo tantus ut fere universam Europam in sectam suam pellexerit,—is too unqualified only; not unjust. If this, of the degrees of merit at issue, be a fair estimate, the conflicting but not individually untrue opinions of trust-deserving authors, are so far reconciled; and, the unprecise—too partial ipse dixit of Haller, indiscriminately propagated by uninquiring retailers, is no more than reduced within the limits of its just application. To Delaboe then, who originated clinical reports, the profession stands enduringly indebted; and whenever such productions meet the eye of the medical reader, the name of this physician will rise to esteemed remembrance, associated with the appreciation of those multiplying benefits, which such publications, so eminently useful and practical, have conferred upon the practice of medicine. Since such example, so every way deserving of imitation, was set by the professor at Leyden, what a phalanx of meritorious hospital physicians and surgeons have laboured in the same tract throughout Italy, Germany, and France; and by whose observations have been swelled the archives of what truly is styled the MEDICINE OF OBSERVATION!

Boërhaave was the next, by whom, in Holland, the growing taste for multiplying correct observations at the bedside of the sick was encouraged. On succeeding Delaboe, he repaired the hospital at Leyden, with a disinterested view to deliver lectures on the cases under treatment: an act, observes M. Rostan, which, of itself, not only should suffice to procure pardon for numerous errors with which this great man—the eclectic *par excellence*, and whose genius was of so superior a caste—is reproached—but should entitle him also, to the grateful recollections of existing and future ages. Boërhaave improved upon Delaboe's lectures, which he re-delivered with great eclat; and had the sagacity to otherwise turn to profitable account the labors of his predecessor. No where has he given any extant account of the plan by which his journals of observation were drawn up. In his academic discourses, he restricted himself, it would appear, to giving general precepts on clinical medicine,—on the study of Hippocratic observation; and variously illustrated the happy simplicity in which the science had been reinstated, after the general resurrection of learning. His students were animated by the encouraging manner in which he noticed them; and their professional ambition was fired, by witnessing the general estimation in which this great man of his generation was held, by all classes of his countrymen and numerous foreigners. Upon the list of his pupils were the names of the most illustrious physicians, subsequently scattered throughout different countries of Europe; and by whose talented exertions the influence of bedside medicine was quickly diffused, in connexion with the glory of their master. That the ECLECTIC's mode of tuition was excellent is attested by Albinus, Gaubius, Van Swieten, Heister, Haller, and many others.

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[1] [These occasional publications, begun by Delaboe, were continued, it would appear, by his disciple MERIAN.]

The influence of Boërhaave's clinique spread first to the capital of Scotland, and shortly afterward to Vienna—whose schools respectively, in point of clinical reputation, as will presently appear, speedily eclipsed that of Leyden, their common mother. "In this country, the merit of first proposing to explain, in clinical lectures, the nature and treatment of the cases of patients admitted into a public hospital, belongs to Dr. John Rutherford, professor of the practice of physic, to whom this privilege was granted by the Managers of the Royal Infirmary of Edinburgh, in the year 1748. In the following year the same privilege was extended to the other professors of medicine in the university; though none of them, besides Dr. Rutherford, appear to have availed themselves of it, till the session of 1757."[1]

Five years after the clinique had been originated in Great Britain by Dr. Rutherford, at Edinburgh, a clinical institution was founded at Vienna, by Boërhaave—" d' après les ordres de *Marie-Thérèse*,"[2] in the year 1753. Public lectures, which acquired for him a reputation equally brilliant as merited, were delivered by Van Swieten, the chief physician of the institution, and by whom the chasteness of Grecian medicine was unhesitatingly adopted as the model of instruction. He was succeeded by another of Boërhaave's pupils. And, although favored by all the advantages derivable from a solid instruction, select learning, and above all possessing the art of discussing every thing with sagacity—De Haen, from self-denial, trod in the footsteps of his predecessor, and was followed in his visits with a fervor of zeal amounting to enthusiasm. This otherwise efficient instructor was blinded, however, by an overweening self-sufficiency. Upon this point, all critics are agreed. His general merits, nevertheless, are very variously judged of. M. Pinel characterizes his talent as having been conspicuous in discussing with sagacity the most complicated facts, and in making historical descriptions of disease subserve the purpose of elucidating the dogmata of the ancients. A more general and critical review, however, of his labors is thus given by a british author, by whom, be it observed, a merit is attributed to De Haen, which, justly in point of priority has been already assigned to Delaboc. "The results of De Haen's observations and experience," says Dr. John Thomson, "were published by him from time to time in his *Ratio Medendi*—a work consisting of sixteen small volumes,—which may be said to constitute an era in the history of practical medicine, not only on account of the accurate descriptions and cases of diseases, with the numerous post-mortem examinations which it contains, but also on account of its being the first medical work in which the result of the observations made, and the experience obtained in a great clinical school, have been communicated to the public. It is not easy from these volumes to ascertain upon what particular plan De Haen conducted his clinical lectures. That he was at great pains, however, to instruct his pupils in what he regarded as the Hippocratic method of observing and of treating diseases, is obvious from every page of his writings; but if his daily instructions were at all similar to his writings, they certainly can by no means be regarded, as having been adapted to those, who were just entering upon the study of clinical medicine. Nothing, indeed, can be conceived less elementary in their conception, arrangement, and execution, than the Clinical Reports of De Haen.". . . . "Indefatigable industry, much learning, accuracy of observation, and fidelity of statement, are qualities everywhere evident in his *Ratio Medendi;* but there is a want of method, connection, and alliance in his observations, which, however valuable they may be in themselves, renders them so many detached and isolated facts,—the *discordia semina rerum*.". . . Many of his dissertations "must be regarded as valuable contributions to medical science." His attention, however, seems to have been confined to the pathological effects of but a limited number of diseases; and he has given "only one instance of the inspection of the body after death from fever."[1]

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[1] Dr. Thomson's Life of Cullen, p. 102.

[2] M. Serre *Reserches*, p. 19.

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[1] "Besides giving clinical instruction in the hospital, where he seems to have it in his power to select for the observation of his students whatever cases of disease he chose, for the subject of clinical remark, De Haen was occupied

After De Haen came Stoll—a physician in the highest degree gifted with whatever constitutes the true practitioner. Endowed with the talent of observation, and equally able to elegantly and chastely portray the history of disease, he also knew how to opportunely seize the characteristics of each Medical Constitution. By his judiciously directed energies the clinique of Vienna received a yet stronger impulse. The principles of the father of medicine were more rigorously adhered to by him, than by Stoerk,—who, in 1761 conceived he had found a panacea in Hemlock,—or any of his predecessors. Stoll's works, nevertheless, though rich in facts, are occasionally disfigured, in M. Rostan's opinion, by the *tenebres* of humoralism.[1]

While bedside medicine was thus being vigorously cultivated at Vienna, CULLEN, after removing from Glasgow, had become the ornament of the School of Edinburgh. In 1757 he gave a course of clinical lectures in the Royal Infirmary of the latter city, Drs. Whytt and Monro, and afterwards professors Gregory and Home, taking a share of the duties on the resignation of the venerable Rutherford—the pupil of Boërhaave, and by whom, as already mentioned, clinical instruction was first introduced into the hospitals of Great Britain.

The exertions of Cullen and his colleagues, "during eighteen years of the same period in Edinburgh," whilst De Haen was starring it for considerably more than twenty years in Germany—" contributed powerfully to

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as a professor in the University, in teaching pathology and therapentics. In this course, he employed, as his text-book, the Institutions of Boërhaave, which he followed very closely, though not servilely, in almost every point of doctrine, as may be seen by comparing his posthumous lectures with the last volume of Boërhaave's *Prælectiones Academicae*, as published by Haller."—*Life of Cullen*, p. 107.

[1] [Compare Rostan's *Prolégomènes*, p. 46, and Pinel, *art. cit.* p. 368.

For the sake of precision, it may be as well to take this opportunity to caution the student against confounding the names, and persons, and labors of STAHL, and STOLL: an oversight occasionally committed by many, who seem ignorant that they are distinct individuals. STAHL, after lecturing in 1684, at Jena, and in 1719 at Berlin, died A.D. 1734. STOLL was Professor at Vienna in 1776.]

excite a general interest in clinical instruction, and rendered the benefits of this mode of teaching medicine so apparent, as to lead gradually to its introduction into other medical schools in various parts of Europe." For many weighty reasons, as however insignificantly affecting the reputation of this eminent professor, it must occasion regret to every modern reader, that Cullen had not, as Dr. Thomson observes, presented the results of his hospital experience to the public "in the form of clinical reports, like those of his contemporary De Haen." If so—"it is impossible that the erroneous assertion so often ignorantly repeated, of Dr. Cullen's being merely a speculative teacher of practical medicine, could ever for a moment have been entertained by the foreign medical public. No teacher of practical medicine"—as we learn from the British, indeed the only Biographer of Cullen, "was ever at more pains to distinguish between well ascertained matters of fact, and the assumptions of hypothetical reasoning. In leading his students to reflect and to reason, it was his constant endeavour to teach them to observe the course of Nature in diseases, to discriminate between their uniform and essential symptoms and their merely accidental combinations, and to ascertain, as far as is possible by observation and analytical reasoning, the respective influence of the remedies employed by art, and of the operations of nature in the cure of diseases." . . . "Every disease, however slight, seems to have been made by him the subject of observation; and the marking of its symptoms as they appeared in concourse and succession—of its chief diagnostic characters—of its accidental combinations—of its spontaneous changes—and of those effected by the remedies employed—were constantly pointed out as objects to be particularly attended to by his students." . . . . "He was at all times disposed to avail himself of the opportunities which a clinical institution affords, of trying and of verifying the medicinal powers of any new remedy recommended by practitioners of credit and experience. There can be little doubt that it is to trials made by him in the clinical wards of the Royal Infirmary that we owe, in a considerable degree, the introduction into general practice, in this country, of various powerful articles of the materia medica which are now in daily use, such as Cream of Tartar, Hyoscyamus, Cicuta, James's Powder, and Tartar Emetic; the last of which he was accustomed to employ in all febrile affections accompanied with inflammatory action, in doses of several grains, given in the course of a few hours, either subsequently to blood-letting, or, in other instances, as a substitute for that remedy." . . . "Another great purpose which Dr. Cullen had constantly in view was the inspection of the bodies of those who died while under his treatment—a study, he remarks, but little attended to; and of pointing out the best guides which students, at that time, possessed, for prosecuting this branch of medical science." . . . "That the prejudices excited against Dr. Cullen, in consequence of his relinquishing the doctrines of Boërhaave, and adopting those of Hoffman, as the basis of a system of medicine which he endeavoured to frame for himself; and the inclination manifested during his lifetime to represent him as merely a speculative teacher of practical medicine, should have been adopted by his professional rivals, or by those unacquainted with that constant reference to observation, and to the results of experience, which he observed in all his inquiries and reasonings, will not surprise any one conversant with medical history: but that these prejudices should have been imbibed, retained, and propagated, long after his death, by no less a distinguished medical philosopher than M. Pinel, who was himself so well acquainted with Dr. C.'s writings, must be matter of equal surprise and regret."[1]

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[1] [In connexion with the above impartial remarks, Dr. Thomson quotes a *long* paragraph, of unjust and erroneous criticism by Pinel from his *short* article in the French Dictionary of the Medical Sciences—see pages 367-8. The date of publication affixed to the volume in which M. P.'s contribution exists, is 1813. The chronology is here alluded to, forasmuch as authors have subsequently, by thirteen and twenty years, retailed similar ungenerous opinions, as the quotations which I shall subjoin, will abundantly verify. A remark may

To return from a seeming episode, neither unwillingly nor unconnectedly introduced, it must be remarked that

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be prefaced, namely, that to the mild and forbearing observation in the text ("M. Pinel, who was himself so well acquainted with Dr. Cullen's writings") with the strictest impartiality, untinctured with national feeling, it may here be added, that Pinel *drew liberally* and *without becoming acknowledgment*, from the opinions and views, if not indeed from the *writings*, of Cullen. Was not an active interchange of ideas kept up for a series of years, between Edinburgh and the Continent, by foreigners visiting the former metropolis, and british graduates repairing to Paris? Hence not only might Pinel and others have virtually known the leading theories and practice of Cullen, prior to either appearing in an authenticated form, mixed up, as they were, with his voluminous systematic writings, whose publication was procrastinated for years;—but there is every reason to believe that they really were cognizant of Cullen's views, through various channels never particularized.

When any writer either quotes the language, or re-echoes the ideas of another, he is and should be held, at the least, equally as answerable for errors and injustice, as the original whom he has followed. Pinel penned his *appreciation* of the Edinburgh professor's worth, in 1813, and a writer in 1826 thus reiterates—"Cullen, heureux s'il n' eût pas cherché à faire plier la nature à l' appui des théories subtiles, et à la recherche des causes procháines des maladies, dans le vain espoir de créer un code complet de médecine inattaquable également par le raisonnement et par l' expérience, et qui l' est en effet, comme il devait l' être, et par l' un et par l' autre."—*Prolégomènes*, p. 46.

Again M. Serre, so recently as 1833, says,—"les idées théoriques de Cullen l' emportent un moment sur la méthode sévère de l' observation que l' on avait d' abord suivie, *ce professeur égara souvent ceux qu' il aurait dû instruire.*" The last clause being a considerable improvement upon the forms of expression in MM. Pinel's and Rostan's critiques, has led to the *liberty* of merely typing it in italics!

It is scarcely explicable how so few opportunities are unimproved upon to attempt to disparage Cullen's undeniably great merits! If Homer himself sometimes nodded while penning his Iliad and Odessey, surely Cullen might have been allowed to have unbent his mind by occasional "day-dreams" in the form of "idées théoriques" and "théories subtiles," as healthful relaxation after his severely practical duties in the clinique, lecture room, and an extensive consultation practice? And had his private opinions and habits been sought to be more industriously ridiculed, if supported even by trustworthy evidence, it would have been perfectly immaterial. The secret history of most great characters is replete with proofs that no man is a hero to his valet. Even the Chancellor who furnished a new chart of human knowledge, played occasionally, it is said, at chuck-farthing with very juvenile *p. r. n.* associates; and another gifted encyclopedia-like minded Chancellor, was not deemed unworthy of being raised to the WOOLSACK, because of having had himself conveyed to the Dumfries race-course upon the top of a sedan-chair. *Dulce est disipere in loco,* truly said the poet: nevertheless, how great small things ever are, to little minds!

"The reputation, however, which Cullen acquired by his clinical lectures, though Edinburgh was the only city in Britain, Vienna was not the only town in Germany wherein, at this period, clinical medicine was taught in the hospitals. For years Gottingen had possessed a school successively directed by Brundel, Vogel, Baldinger, and others. A medico-chirurgical clinique, too, was instituted in Sarthe by Arnemann, who there assembled a number of young practitioners, and organized them as an association for observing and treating disease. In connexion with the progress of this institution, one of many bright examples stands in prominent relief upon the page of the history of continental medicine, and presents a painful contrast to the passive indifference of the unweeting statesmen of some countries, to the progress of national medicine. The current expenses of Arnemann's hospital, as a school of instruction in BEDSIDE MEDICINE, were met partly by subscription and by the supplies of Government; whose protection, dignifying and honorable to both parties, was cordially tendered.[1]

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and the opposition which he encountered, contributed each of them to bring him rapidly into the notice of the public, and to procure for him that high estimation, both as a teacher and a practitioner, which had been anticipated by his friends:" That the qualifications necessary for a clinical instructor were singularly combined in Cullen, and the interest which he took in the career of his pupils, was encouragingly great—are interestingly illustrated throughout, and more particularly from p. 107 *et seq* of *An Account of his Life, Lectures, and Writings*, by Professor Thomson, of Edinburgh, 1832.]

[1] [The revenue of this country is said to be annually aided, to upwards of *one hundred thousands of pounds sterling*, by the sale of "Patent," or quack medicines! Whatever actuated former, it is absurd to suppose that modern legislators can be so ignorant of HUMAN NATURE, as to expect any other than the well-known effects, arising from the practical working of stamp duties on quack medicines. The *duty* mainly circulates each nostrum into notoriety, and procures for it "a name." In England, which a noted charlatan styled "his best nurse," venders most philosophically advertise their specifics as "*Established* Medicines."

Were this degrading item of the revenue annually expended by Government in Prizes, Bursaries, &c. for the promotion of legitimate medicine, or voted towards the erection of NATIONAL HOSPITALS, the credit of Great Britain, for civilization, would not be detracted from. Upon every principle, particularly of that of COMPENSATION recognized by Archdeacon Paley, such an appropriation of this tax, if to be continued—and to a certain extent a "discerning public" *will* be quacked,—it would be strictly equitable in the way of reprisals; and would exercise a redeeming influence upon british medicine and surgery.]

Meanwhile the organization of clinical establishments was thus actively proceeding throughout the German dominions, Italy had, already, attained the same grand project. On the authority of Camparetti the intellectual town of Padua possessed a clinique in the hospital of St. Francis, in the year 1578, or nearly a century and a half earlier than the Imperial city: for it was not until 1715 that the clinical school in connexion with the hospital at Rome was established by the Sovereign Pontiff.

The whole circumstances connected with the instituting of the first clinique in the capital of Italy, signally attest the gratifying manner in which the dignity of Medicine was there and then sought to be upheld; and bespeak how the services of scientific and zealous physicians, exerted for the public weal, were encouraged by the ecclesiastical and executive power. Supplied with every article conceived likely to aid correct observation, and calculated to promote the study of pathological anatomy,—adorned with the richest collections of Materia Medica, and the most perfect approved instruments of Surgery—never was hospital opened under happier auspices. For the success of the humane objects of the institution, orisons were offered up; and the vesper hymns chanted forth by numerous choiristers, were accompanied by the full-throated gong-like voice of the sympathizing multitude. And, straightway amidst the gorgeous ritual of Papal parade, in presence of fifteen Cardinals and fifty Prelates, the distinguished—the appreciated LANCISI, surrounded by a chosen band of emulous pupils, crossed the threshold of the vast hospital of the Holy Ghost, and was solemnly inaugurated as chief of the clinique at Rome.

In 1781 Tissot was called to the chair of clinical medicine, as a few years afterward was Scarpa to that of surgery in the University of Pavia. The fame of these professors renders it wholly unnecessary to characterize the results of their assiduous labors. As the historical reader directs his attention to the cliniques nearer his own time, those of Florence, Pisa, Pavia, Sienna, Naples, and

Turin, require special notice. Above all, most honourable mention must be made of two: that at Bologna presided over by Tommasini; and that which was served by Rasori at Milan.

By the testimony of those who have recently visited the universities of Spain, the clinique constitutes an essential feature in the medical education of that benighted, priest-infested country. Conformably to an ancient rule regulating the practice of physic, candidates, after due study, were required to witness a town-practice during two years; and in the absence of satisfactory proofs of such opportunities having been turned to good account, licences were and still are denied them. In this way, Solano, in 1707, made his first observations on the pulse while the articled pupil of Pablo of Granada. From the tenor of M. Broussais's remarks in his *Examen des Doctrines Médicales* it would appear that the generality of spanish physicians scarcely know the structure of the human body. "Medicine with them," he observes, "is an abstract science—a matter of sheer memory, the names of diseases being kept in remembrance with those of the medicines believed to be their cures." Their consultations at the bedside of patients resemble a New Zealand parliament: "great show is made. They rhyme over what they have acquired by rote when on the benches at school. Some develope the humoral theory of Boërhaave; others strive to make the disease square with the nosology of Sauvages; many quote Cullen, whom they have selected as the subject of their meditations; their compatriot Piquer is the Coryphœus of many, especially those of the school of Valencia: lastly, the most finical,—those who pique themselves on keeping their information abreast of the progress of science, quote Pinel, whose works they possess. Each endeavours to sustain his own opinion without pretending to invalidate those of his brethren. They think that as medicine is a science of conjectures, each, in order to form his diagnosis, should follow the secret inspiration of his genius, unless others surrounding the patient's sick-bed have a right to find fault. The result of these grave discussions is, that each of the consultants comes, though apparently by a very different route, to recommend nearly the same remedies, —preference almost uniformly being given to irritant medicines."

Throughout the stretching territories of an empire which, in its political negociations with neighbouring powers, is accused, justly or unjustly, of betraying more of craft and double-dealing than of civilized ability—palpable proofs exist, that statesmen have, there, not to be taught the great axiom, that the WEALTH as much as the physical, intellectual, and moral strength of a nation, depends upon the HEALTH of a nation. For centuries have the Czars and state-advisers of Russia, had the sagacity to comprehensively legislate for the health of their countrymen.

One wise Physician skilled to heal,
Is more than armies, to the public weal.

Clinical instruction was established in 1765, and has since been continued upon an extensive and mature plan; and, as might have been foreseen, it has been found to directly and indirectly supply a very muscle of power to the right arm of the executive. Every medical school throughout her towns is reported as attached to a hospital.

Such are only a few among many proofs of the growing importance which the State and the public mind in Russia, and still more in Prussia,[1] attach to the cultivation of the duties of the clinique. Every young man of untainted character, who evinces proofs, not so much where, or how, he may have acquired his classical attainments, as that he comes up to the required standard of professional information, has a right to enter the public charities of Russia. Students, duly registered, may gratuitously derive the utmost possible profit from what they can hear and understand from progressive and regular instructions, in the difficult science and art of observing, interrogating, discriminating, and relieving the sick. And farther, as the available knowledge of the Russian clinical pupil increases, duties of an increasing responsibility are assigned him. Out of a given number of clinists so disciplined, the best of the most advanced are drafted off and sent, from time to time, at the expense of government, to foreign universities; so that on their return, novelties, improvements, and suggestions may be submitted, in the form of reports, to those competent to get at the kernels of every thing, and to turn whatever has been gleaned during their peregrinations to the very best account.

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[1] [For details, too extensive and minute to be here introduced, as to the organization of Medicine and Surgery in connexion with the STATE in Prussia, see *London Medical Gazette*, vol. for 1834–5, passim.]

To come at length to France: In conformity with a royal edict, proclaimed in 1786, authorizing different reforms in the University of Caën, a chair of practical medicine was attached to the Hôtel-Dieu. Previously, however, to this epoch, Desbois, physician to La Charité at Paris, had collected a number of pupils, and thereby scattered the germs of clinical instruction, when on the very eve of an immediate and great development.

Every one acquainted with the lacerated condition of her society, during the appalling æra of change to which the institutions of the French were subjected, during the last two decades of the eighteenth century, will not be among the number of those otherwise surprised, that amid this general and spontaneous national movement, France alone, as respected Medicine, as it were, remained stationary. During the overhurling confusion accompanying and consequent upon *emeute* after *emeute*, and the successively new but short-lived condition of things, which anarchy ephemerally scaffolded upon their ruins,—the ancient forms of the schools were effaced or annihilated. "These were the times," as remarked by a fierce writer, "for trying men's souls." Antitheses were among the characteristics of the day. Even blockheads became enthusiasts: yet the heart's blood of the bravest, truest, best of the french patriots, all but coagulated within them. There was no state, no religion, no ORDER,—

"heaven's first law,"—throughout any of her many departments.[1]

Yet during these political convulsions there would seem to have been no lack of perception of the want and value of clinical establishments. The opinions of such men as Lefrançois, Bordeu, Vicq-d'Azyr, and Cabanis, were of the most decided character. Importunate demands, during each temporary lull in the political tempest, were addressed and forwarded to Government. It was not, however, until Frimaire of year 3, [1794,] that the clinique became an immediate dependance of the faculties of medicine.

Coeval with the promulgation of the law of the 14th Frimaire, [Dec. 4] the schools of France were simultaneously provided with clinical professors. The chair of bedside Surgery was occupied by the meritorious Desault. Corvisart, at the death of Desbois, had been appointed physician to la Charité, in 1788; and the professorship of clinical medicine was assigned to him in 1795. The appointment of Corvisart as government physician, on the first day of the Consulship, was immediately followed by a flatteringly conveyed mandate to act, forthwith, as the confidential medical adviser of Napoleon, by whom he was ever treated with the most marked respect. Corvisart had the magnanimity to prevent his private feelings interfering with his public duty. He used his position nobly, and exerted his influence[2] with the first Consul and Em-

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[1] [The state of France at this eventful period, is finely depicted in the first two volumes preliminary to Sir Walter Scott's History of Napoleon. See more particularly Alison's *History of the French Revolution*, a recent work replete with statistical data illustrative of the Philosophy of Crime. How many noble minds were not then overthrown by Idiotcy, Insanity, and phrenzied Enthusiasm! Few subjects of study can be of more absorbing interest to the cultivators of Medical Jurisprudence,—a science so every way inviting, from its boundless associations.]

[2] [It was at the solicitation of Corvisart, that Buonaparte, when first Consul, commanded a monument to be erected, in the Hôtel-Dieu, to the memory of Desault and Bichat.

Corvisart was born at Drécourt, 15th February, 1755, and appointed, in 1782, to the office of "docteur-regent" of the Faculty of Paris. He next sucperor ever in behalf of Science and her votaries. Appointments were procured by him for those whose talents were fully equal to the responsibility and emolument arising from their official duties. Among the number so befriended from purely public motives, were individuals by whom he had been attacked, orally and in writing, both in private and in public. Among his clinical pupils were Bayle, Laennec, and the lately deceased Baron Dupuytren. Pathological anatomy engaged much of his attention; and the principles and practice of Percussion, with the exploration more particularly of affections of the heart, were illustrated to his students at the bedside. In his general lectures, the Aphorisms of Stoll were tested in the wards, and explained *con amore.* Many of the most eminent practitioners of France were successively educated in his clinique, and thence dispersed throughout various parts of the empire.

Scarcely had the benefits of clinical institutions been felt in the capital, when cliniques multiplied daily, and were extended specially to almost all of the departments of the healing art. Boyer, Cullerier, Pinel, Beauvais, Chaussier, and Dubois, vying with each other, opened up new sources of instruction. The labors of these accomplished teachers exercised the happiest influence; and a new—a practical aspect was communicated to french instruction. It was perceived that cadaveric examinations should form the complement of medical studies, and profiting by works issued at the commencement of the nine-

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ceeded Desbois de Rochefort, as stated in the text, in 1788, and occupied the chair of clinical medicine in 1795.

Of a contemplative and sedate character, Corvisart was subject, like many of a melancholic temperament, to high spirits alternating with states of depression. At the fall of the imperial government, in 1814, he continued faithful to the interests of Napoleon, whom he sincerely esteemed. Declining the most honorable offers tendered him by the Bourbons, he retired to the country. His health, robust until then, sunk under repeated attacks of Apoplexy—a fit of which relieved him from much suffering, on the 18th of September, 1821.—Abridged from the *Dictionnaire Historique de la Médecine Ancienne et Moderne, par M. J. E. Dezeimeris.* Paris, 1835.]

teenth century, the minds of men so far regained the narrow and difficult path of sound observation.

If France, then, was the last to organize clinical schools, and cherish them in her bosom, the fearful state of things philosophically analyzed and exposed in the volumes referred to, in page 33, will abundantly shew, that it was owing neither to uncivilized unconcern, nor to any want of perception on the part of her zealous faculties, of the intrinsic benefits of such establishments. On the contrary, it must be matter of admiration, that her medical men never lost sight of the scheme which they longed to consummate, and which was so frequently attempted to be carried into operation, while the scientific, as well as the political institutions of their dishevelled country, were receiving the most stunning shocks, and were all but overwhelmed by the bloodshed and anarchy avalanched so frequently upon the capital and large cities, by the vampire-like outbursts of republican phrenzy.

The multiplicity of clinical institutions founded in France, in a comparatively short space of time, more than compensated for her previous backwardness. At this hour there is not a city in the world wherein equally numerous, equally varied clinical courses are delivered, as in Paris. Of the excellent system pursued, no one but an eye-witness can form a just conception. Courses in succession are systematically conducted at *la Charité, la Pitié, St. Louis, Salpêtrière, Enfans Malades*, &c. &c. The medical superintendents make their appearance as early as the hours of six or seven in the morning, to discharge their several duties to the afflicted, and to deliver lectures, thereafter, upon the cases, in the crowded amphitheatres attached to the respective institutions.[1]

The eagerness and unanimity with which the faculty of

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[1] [COUP D' OEIL *sur les cliniques médicales,* de la faculté de médecine, et *des hôpitaux civils* de Paris. *Par* F. S. RATIER, 1830.

A work on a similar plan, illustrative of the actual state of the cliniques of Great Britain and Ireland, would be most beneficial, and to the majority of the profession highly acceptable.]

Paris responded to the necessities of the epoch, were shared in by that of Montpellier. Although MM. Baumes and Fages had taught at the bedside prior to the foundation of schools of health, and although some wards in the hospital of St. Eloi had been set apart for clinical instruction, the service of this charity was not, until the early part of 1801, exclusively allotted to the professors of Medicine. Among illustrious names, associated with a career of honor, figure those of two—Fouquet and Delpech, by whom the greatest services were rendered to the faculty. Fouquet traced with the hand of a master, the plan of clinical instruction; and may be considered as the true founder of the medical clinique at Montpellier. His pupils testify by their panegyricks and deeds, how instructive were his lectures. A pleasing countenance, grave manners replete with dignity, profound and select learning, consummate experience, admirable sagacity in prognosis, with fluent elocution,—such, in the language of Serre, were the most *saillantes* qualities which distinguished this gifted professor.

The Montpellier clinique has not degenerated in the hands of Broussonet and Caizergues. Their various duties, as conscientious professors, are performed with rare ability: and the affable good will with which both listen to every question which the youngest pupils address to them, forms but one of their many qualifications as clinical instructors.

Delpech accomplished no less for the surgical, than Fouquet effected for the medical clinique. The highest praises to his memory will be commanded from all, fully aware of the previous state of surgery at Montpellier, as contrasted with what it became subsequently, to Delpech's official labors in that city. His works on hospital gangrene,—summary of diseases reputedly surgical—Clinique of Montpellier, with innumerable articles inserted in various medical periodicals, sufficiently evince the restless activity, professional enthusiasm and genius of this great surgeon. His writings, nevertheless, were as nothing, compared to his brilliant and daily improvisations welled forth at the bedside of his afflicted fellow-beings. He appeared to look at prime details as through a microscope, and yet took besides, as if intuitively, a sweeping bird's eye view of the relations of his entire subject. No professor in his scientific discourses possessed more natural effusion than the unfortunate Delpech. So dominant in him was the taste for instruction, than no sooner had he conceived a new idea, than he burned with irrepressible desire to communicate it. Never were lectures more admirably adapted than his, to rivet the attention, and fire the enthusiasm of an ingenuous audience. On seeing him encircled by pupils, with whom he seemed never weary of conversing and getting new glimpses of thought, by comparing their various notions and detecting the sources of their difficulties,—judges of character would simultaneously have turned to each other and exclaimed, "teaching must be a PASSION with such a man"! Delpech, in fact, loved to acquire, only that he might impart.

While the healing art was thus impulsed at Montpellier, another professor arrived to add yet more brilliancy to its surgical instruction. Lallemand—yet a youth, but filled with ardor for science, distinguished himself from the outset, as much by his rigorous severity of method, as by the comprehensive grasp of his merest glance as an observer. Thirsting for fame, and aware of the fleeting hours of active life meted to man upon earth, he lost not an hour. His first *Lettre sur les maladies de l'encéphale et de ses dépendances* appeared forthwith, and at an age when a cold unthinking world would, probably, have denied that he could possibly possess experience. Each succeeding *livraison* stamped him, however, as a successor, not unworthy of Morgagni—evidently his great archetype. His work *Sur les maladies des organes génito urinaire*, so generally read in France, is remarkable as much for the clearness and charm of its style, as for a luminous dialectic and a wakeful connexion of ideas. He published, and continues to issue the fruit of his successive meditations, and while testing and putting them into form for the world, many trimmings of the midnight lamp have interrupted researches, which to him were as labors of love. He evidently, from the first, has desired to rival the memory of Delpech in zeal and talent at the bed of suffering; and has struggled, up to this hour, to extend the reclaimed domain of true science.[1] The students of Montpellier had never seen this part of their art represented with such *eclat* until Lallemand's accession, and never previously had so many strangers flocked to St. Eloi, to implore the succour of TRUE SURGERY.

The faculty was farther strengthened by the acquisition of Dubriel and Duges. Solid and varied instruction enabled these professors to keep alive their students taste for anatomy and surgery. The chair of Obstetricy, which had been exclusively engrossed by dry theoretical expositions, was converted into a special clinique. A combination of happy changes, and the stimulus of necessity arising from an unstemable current of OPINION, revolutionized the state of medicine at Montpellier. Her faculty were speedily enabled, even as regarded surgery, to look around at other schools in a spirit of emulous fellow-feeling, instead of with envy—that despicable vice, whose active and passive manifestations ever indicate the sluggard, and the entire tribe of INCAPABLES.

The school of Strasbourg, however, lagged ingloriously behind the march of the civilization of the age. M. Noel, the Director in his *compte rendu* for the year 10, [1801,] says an organization was implored for the clinique "more analagous to the object which this branch of instruction should attain, and worthier of the grand ideas which government had evinced as to the importance and inestimable advantages of clinical institutions." Since these requests and intentions were preferred to government upwards of thirty years have fled beyond recal, and the faculty of Strasbourg have scarcely advanced a single pace, either "backwards," or forwards in improvement! On the authority of M. Serre, there is only one hospital, which is devoted to the services of the clinique; and the greater part is in the hands of private practitioners, whose time is in no way encroached upon by the mind-expanding duties of clinical instruction. The professors themselves, naturally discouraged by the restraints more than by the force of vicious example, which this division in the service necessarily drags along with it, do not impart all the extension to the clinique, which it might, and would otherwise have. The continuance of such a state of things must prove injurious in the extreme to the progress of medicine and surgery, and to the reputation of the faculty by whom it is tolerated.

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[1] [See page 475 of the *Archives Générales de Médecine*, for April, 1835. "*Observations diverses de la* Clinique Chirurgicale; par F. LALLEMAND, Professeur à la Faculté de Médecine de Montpellier." Also, upon the different operations for the cure of *erectile tumors*, p. 1—26, *Op. Cit.* May, 1835.]

The obstetrical clinique attached to the school of Strasbourg, for many reasons, merits notice. It is superintended with much ability and success by professor Flamant. Clinical institutions of such a kind must ever prove, not merely creditable, but as boons, likewise, to the communities in which they are supported.

With respect to the secondary schools and military hospitals throughout France, in very few, of the many visited by M. Serre, are the responsible duties of the clinique, conscientiously performed by those charged with them. How painfully this explains the fact of so many well disposed young men passing years in well frequented hospitals, and nevertheless learning—scarcely anything! The clinique does not consist, as may be gathered from the sequel of Part I, in pupils following the medical officers like so many peripatetics during the visit; nor in a few broken sentences, or incoherent questions being at intervals addressed to them. On the contrary, clinical tuition requires the most direct—the most intimate relations between master and pupil.

With whatever reluctance, this section of Part I. here must close. For reasons stated in the preface, it has been deemed preferable to altogether omit any exposition in detail, in the absence of the possession of fuller and more trust-deserving information, of the origin and development of the existing clinical institutions of Great Britain and Ireland. The reader, however, will find a most instructive contribution of general and special interest, from the pen of Dr. Graves, " On Clinical Instruction ; with a comparative estimate of the mode in which it is conducted in the british and continental Schools," in the tenth volume of the London Medical Gazette. The general accuracy of Dr. Graves's account of the mode in which the duties of the medical clinique of Edinburgh are conducted, will be recognized, and vouched for, by every graduate who has actually witnessed the plan pursued. But since the date of the article referred to, most material alterations have been made in the organization of the surgical clinique. The large premises adjoining the Royal Infirmary, constituting the remains of the well-known " Old High School,"—where an Adam, a Grey, a Pillans, and a Carson, successively pioneered the way to the critical appreciation of the literature of ancient Greece and Rome, and where successively were taught so many of the ablest scholars of the last and present century,—have been fitted up for the reception, exclusively, of surgical patients. The amphitheatre is inferior to none of any country ; and the various clinical services are most zealously fulfilled by professors Syme and Lizars.

British readers are still unprovided with any authentic account of the American cliniques. Lunatic Asylums, it would appear, are the only hospitals to be met with in European and Asiatic Turkey.[1] And, if such inference be warrantable from Mr. Gutzlaff's silence, in the subjoined note extracted from his informing publication, no such

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[1] [The state of Medicine in Turkey may be conceived, when diseases are yet attributed to the special wrath of God, the interference of devils, and the evil eye of the stranger. Wandering DERVISES—descendants of Lochman continue to be the practitioners of Turkey. "Where money is given in the expected quantity their prayers are endless. Their beads are told *ad infinitum*. Picked sentences of the Koran are sewn together, and given to the patient to swallow." A foreign physician, if a Frank, is supposed generally to be possessed of very superior

knowledge; and is followed with avidity. "Whoever, in any part of Turkey, wears a hat and not a turban, is immediately looked on, as the possessor of medical knowledge, and is at once called "Hekim Baschi," and must, *nolens volens*, immediately enter upon practice; for the Turks crowd round him, and hold out their hands, that he may feel their pulse." The pulse being felt, they believe "nothing more" required.*

Others seek, in the physician, only a person to supply them with remedies indicated by themselves. One applies for a vomit; another for a purgative; a third for a medicine to produce, or to expel wind....."The ancient pathology that diseases are caused by an excess or deficiency of wind in the various organs and cavities of the body, is still common. Thus, a *headache* is caused by wind in the head; *dyspnoea*, by wind in the chest. The physiology of respiration is thus rendered very simple, and the trachea becomes not merely the air pipe of the lungs, but of the whole body."....The encouragement given to foreign practitioners has generated the greatest abuses. Many, induced by sordid views, embark in a system of barefaced quackery; and thus persons who have followed other employments at home, are suddenly physicians in Turkey. Dr. Oppenheim was invited to attend a consultation with an *eminent* physician, at Smyrna, who candidly told him, that the only preparation he had received for the profession was—service in the army as drum-major. Among the staff of the Turkish army, were a Maltese, who had been a letter-carrier, and an Italian captain of a merchant-vessel, who had been shipwrecked on the coast of Asia-Minor. A Genoese gentleman, implicated in the late revolutionary attempts in Piedmont, and who had long served in the army, applied to Dr. O. who gave him sixteen *recipes*, by means of which he was set up in the world, being soon afterwards appointed—*physician to the Governor of Jambul!*" Jewish physicians abound. "They wander about the country, with their apothecaries' shop on their back, and are, in fact, medical pedlars.....No medicine gets the least credit, unless it produce sweat, urine, or purging. There are no apothecaries; and no shops for the sale of medicines. Where the physician is seldom able to write, such shops would be useless. There is nothing like a medical police. Poisonings by design and 'accident' are frequent. Insanity is rare in Turkey. 'Naturals' and idiots are not unfrequent. Rendering persons idiotic is the source of great emolument to some: it is carried into effect, not merely upon children, but upon adults, when it is judged necessary to render them incapable of conducting their affairs, while, at the same time, their removal by death appears, for certain reasons, impolitic. The present SULTAN is said to have had recourse to this infacivilized institutions as CLINICAL HOSPITALS, bless the three hundred and sixty seven thousands of human beings by whom the "celestial empire" of China, is peopled![1]

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* "Nothing so enhances, in their eyes, the value of a physician, as his being able to tell every thing after feeling the pulse.....The Governor of Adrianople once visited the tent of the russian general, Paulin, when Dr. Oppenheim and two other physicians were attending at the levee. Each of them, successively, was presented to the Pascha, who made him feel his pulse; and when the ceremony was over, he immediately declared, that one of them was incomparably a better physician than the other; for, said the wise Pascha, *he felt my pulse much better.*"

mous proceeding, in the case of his son and heir-apparent to the throne"—lest the Janisaries might dethrone him.

As to *the state of Surgery*, amputation is held in abhorrence by the Turkish surgeons, and from soldier to vizier. The opening of a dead body is expressly forbidden by the Koran: "Thou shalt not open the body, even of a criminal who has stolen and swallowed pearls of price"—are the emphatic words of the prophet.....How the profession is remunerated, may be supposed, when the *sick* Turk makes promises, and, when *convalescent*, breaks them. "The physician is often obliged to draw up a specific contract in writing, and according to a legal form, before he undertakes the treatment of a case, or the performance of an operation. The contract is deposited in the hands of a magistrate, who can enforce payment, and whose zeal in the discharge of this duty is quickened by the legal fee of 10 per cent. to be deducted from the stipulated sum. It is not very rare, however, for the patient to evade the ends of justice, by paying the magistrate 20 per cent. and the physician's contract turns out to be waste paper."....The Turk considers the knife of the surgeon in the light of a weapon wielded by an enemy, and thinks himself called on to avenge the death of a relative after an operation. The surgeon, to avoid fatal consequences, is often obliged to pay blood-money.

"Turkish surgeons have no other instruments than a lancet, scissors, searing-iron, a forceps for extracting balls. They are great adepts in bleeding and cupping.....They dread hemorrhage, which they are wholly unable to control.....

"It is a pity that the state of Medicine is so low in a country where the inhabitants esteem so highly the medical art, and where all are inclined to respect physicians."...."By the Turks a skilful physician is almost ranked as a saint; and the appellation "Sekim" is the surest protection against either religious or political persecution."

[Condensed and transposed from an interesting production, by a lively, but most erratic writer:—See *Dublin Journal of Medical and Chemical Science*, July, 1833. The copious analysis, drawn up by Dr. GRAVES, is entitled, "Dr. Oppenheim on the State of Medicine in European and Asiatic Turkey." See also, Vols. XV. and XVI. of the Edinburgh New Philosophical Journal.]

[1] "There are few subjects in the wide range of the sciences, upon which we do not meet with a Chinese work. Many of their books are truly excellent. As far as their own history, philosophy, polity, and poetry are concerned, they may furnish us with very valuable hints; but those upon natural history, geography, chemistry, &c. are very defective, and often childish. *Medicine* is very generally studied, and the number of doctors is as large in China as in any other country in the world. Their physicians, though expert in prognosticating diseases by feeling the pulse, know nothing of anatomy. Moreover, they treat all diseases upon the supposition that the body is composed of five elements—water, fire, metal, wood, and earth, which, by losing their due equilibrium, are the causes of all complaints. This theory gives rise to a great many serious practical errors. When we see, in Europe, the press teeming with new publications, we ought rather to be astonished, that amongst three hundred and sixty seven millions of men, there is not one original writer, nor has there been any for many cnturies."—*State of Science in China.* See p. 67 of *History of China, by the Rev. C. Gutzlaff.* London, 1834.

SECTION II.

PROGRESS AND PROSPECTS OF THE CLINIQUE.

> This school of ours it must be owned is idle: but what can we do? According to the man, must be the lesson!—*Terence.*

HAVING noted the obscure origin of bedside medicine, and sketched the chief progressive improvements which the institution of the clinique so signally received under the cherishing protection of various foreign governments, it is proposed to, now, advert to some among many modifications and improvements which may be generally introduced into this department of british medical education,—one, to which all others, in the curriculum of study, are preliminary and evidently subsidiary only.

Whoever has visited the large metropolitan cliniques of Paris and London, or of Edinburgh, Glasgow, and Dublin, must have witnessed, and upon reflection regretted, the obvious evils attendant on the indiscriminate admission of pupils, and the rush which is kept up, from bed to bed, before and behind each of the professors, during the medical and surgical services.[1]

Sydenham assuredly was wrong, in advising, more and more strenuously, the doubting London burgess to send his son, *per saltim,* to the wards of a large infirmary, to daily watch the progress of disease. Just as if a youth could intuitively perceive what requires much patience and varied tact, on the part of teachers, to literally enable the majority even to see! Well might the anxious and sensible parent exclaim, "What! without preparing him by suitable elementary studies?" Can neophytes, ignorant of the rudiments of anatomy, physiology, pathology, and therapeutics, derive much advantage from visiting the sick? That pupils should not be promiscuously admitted, but such only as have on examination proved themselves sufficiently grounded in the preliminary knowledge required, is the opinion generally entertained by all, who have made the clinique the special object of their attention. Besides, not only must a concourse and disorderly groupe of persons in the wards distract the attention of those desirous of being absorbed in their duties as observers; but, it must likewise oppress and harass the sick. How frequently are the best places occupied by those, round the beds, least able to derive from them the greatest advantage! An individual may have the best eyes and the most vigorous understanding, and yet not know how to use and apply them. A properly organized system would speedily get rid of the evils under notice. If some plan, for instance, were laid down by each professor, as THE ORDER OF THE SESSION, the good sense of students, alive to their own advantage and that of others, would surely induce them to readily adhere to it.

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[1] [To such an extent does this, generally complained of, state of things prevail, that it is next to impossible for a moiety of students to take up and maintain a favorable position near any select number of beds. The jostling and elbowing together constitute a scene, the counterpart of that presented when an individual has tumbled from a building, or otherwise sustained a severe accident in the street. There is often, too, a similar scrambling, and looking over the shoulders of those in front: and during the clinical visit every one inconvenienced, is apt to consider every body else, but himself, "so *inconsiderately* in the way" of the medical attendant.]

Various benefits would result were observers not admitted to the clinique, till after profiting by a determinate order of study. It would then become a matter of ambition, with the majority, to come at least up to, if not to exceed the standard enjoined. Many, it is to be feared, are hospital PERIPATETICS, rather than clinical observers. Nine-tenths of students, prematurely "walking the hospitals," either imbibe erroneous notions, or, from inability to appreciate what passes, get disgusted or indifferent to what, when rightly conducted, constitutes the most interesting of all their studies. Moreover, by pursuing at the outset, and the chances are that he will pursue a faulty method—the pupil contracts loose and careless habits of observing, and thence self-duped, ends by deceiving or misleading others. The ludicrous and painful differences of opinion, which three or more practitioners will pronounce respecting the same case, at a consultation, are surely chargeable, much less to the fact of medicine being a science of probabilities, than to differences in the powers of attention, perception, comparison and judgment; and above all to the different degrees of discipline, to which these powers have been submitted. Hence the necessity, that all intending to practise medicine should study under trained masters: hence likewise it is, that young surgeons and physicians hived off from the great schools, where BEDSIDE MEDICINE is systematically taught by able professors, possess infinitely more *experience*, properly so called, than many who have been thirty years in private practice. Years are not the measure of experience, as frequently reiterated during the last two centuries. Experience depends not upon the length of mere animal existence, but is determined, says Bacon, by the manner in which one spends his *hours*. What the public understand by medical experience, is furnished (how dearly!) at the expense of many. Let students, therefore, bear in mind, that the healing art can only be correctly acquired from clinical professors and the sick; and that every thing—even the art of seeing, is difficult in medicine. How many at the bedside see or think they see, and yet do not perceive! Fully as many hear, who do not understand.

There are other points worthy of more attention than they have hitherto received. To the majority of students, the clinical journals, often, are virtually as sealed books: hence, many who are unacquainted with the mode of taking available notes, slavishly copy the fruits of a more diligent and pushing companion's labor. All should be instructed to observe for themselves, and to journalize daily: *nulla dies sine lineá* should be a motto, and one of the maxims imprinted upon the note-book of every clinist.

Were those only to be admitted to the clinical services, who have commenced the third or fourth session of their studies, or, who have given proofs of possessing the required knowledge,—equally active surveillance could be kept upon all present, by the professor assigning different duties to the most competent, in accordance with the modified monitorial system so ably enforced by Mr. Pillans.[1] Better that only ten, twenty, or thirty pupils be taught thoroughly, than one hundred imperfectly. M. Fouquet seldom sanctioned more than a limited number of students to flock round each bed. This excellent professor caused a *system* to be observed in his clinique, and resorted to many other modes of instruction, not a few of which if recommended or practised on this damp side of the Straits, would, to a certainty, be disparaged by the epithet, "enthusiasm"—a word never more prostituted than when ungenerously applied—abused rather, in a depreciatory sense, against lovers and cultivators of medicine: for without enthusiasm, or the most untiring perseverance, rivaling that which characterizes the Germans, as a nation, the most paltry success only, will attend the best directed efforts of the many, by whom the healing art, in this country, is pursued as a profession. Fouquet not only directed his pupils to be the historians, by day, of the progress of disease, but solicited them to frequently watch, by night, in the wards, in order to judge of the action of remedies and appreciate the changes which might or should not arise. Data, thus furnished, were discussed by him, and their indications pointed out to pupils, who could not but esteem such a master.[2]

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[1] Professor of Humanity in the University of Edinburgh.

[2] [There can be no question, but that many diseases, between the dead of the night and sunrise, undergo decided changes, which, like the light of the glow-worm, pass away or are no longer discernible as day advances. All popular "superstitions," as they are styled, have less or more foundation in matters of observation: and what "superstition" is more general, than the ominous dread, with which the old nurse watches patients declared "in danger" at what *she* terms "the turn of the *night's* TIDE!" Old women, of both sexes, it is true, love to be particular: but, how come so many more cases of parturition to commence, or terminate, during the night? How come so many more patients to die between twelve p.m. and nine a.m. than inversely? Such are empirical facts, because medical men, as yet, not being able to satisfactorily explain them, either overlook the

The most able and experienced pupils, who quit the french hospitals, are those who have served as *internes*. If the French, therefore, would but reflect, instead of confining the privilege to a few, they would perceive the advantage of training many more, as "internes" or house-clerks. Why not, generally, admit young men into the medical charities of Great Britain and Ireland to be similarly trained? The public, as well as the profession, would, directly and indirectly, thereby be benefited. No monopolies can be either more out of place, or be more injurious to the public, than monopolies in medicine. The circle of clinical study should be aggrandized: and so long as hospitals, in general, are inadequate or unavailed of, for the practical purposes of systematic instruction, the greater is the necessity that the opportunities afforded by every charity supported by a heavily-taxed public, or by government,—should be utilized to the utmost.

Among other modifications, which, in all probability, will be introduced into the system of medical education in this country, why not, and with as little delay as possible, cause candidates for the surgical diploma, and for "the highest honors in medicine," to undergo a searching practical examination at the bedside of the sick? This would be the test of tests. Were this frequently offered suggestion acted upon, the average of students would feel a deeper interest in the practical duties of the CLINIQUE; and the public would confide themselves to the care of surgeons and physicians *so* tried, much more readily than to others, licensed as heretofore; because, were the final examination conducted in the clinique, communities would possess a more trustworthy guarantee that their healths would not be tampered with by acts of omission, or of commission, on the part of those by whom practical experience can frequently only be attained as by the quacks—

difficulty, or affect, as some do, to decry as absurd, what it flatters their self-importance to ridicule as unphilosophical and beneath their dignity to condescend to seriously notice! The assertion, nevertheless, stated at the outset of this note, appears to be borne out by multiplied observations.]

namely, by a continual correction of blunders. At all events (and how much to the disadvantage of young practitioners!) the possession of *practical* or clinical information cannot be conscientiously certified by any body of examinators, while a herein defective mode of education and licensing continues unremedied.[1]

The monitorial system has been alluded to. Why not entrust, as is successfully done in the german and in some of the french hospitals, a certain number of patients to such students as shall prove themselves best qualified to undertake duties, at once so honorable and responsible? The minor operations of surgery, too—ever the most useful, because most frequently required—with every propriety, might be performed by advanced pupils, under proper superintendence. Hundreds "walk the hospitals," and quit the universities, without ever having opened a vein, dressed a sore, applied a bandage, or, possibly, having diligently watched the manipulations of a more fortunate and advanced fellow-student. Yet, some otherwise well-meaning subscribers, or members of petty committees to hospitals, from mistaken views, might, perhaps, object, and exclaim, "It is not humane—it is not conscientious, in a professor, to delegate his duty towards a poor creature, in a hospital, and, above all, to a mere *boy* at College!" Unfortunately, such opinions have much weight, despite of their inconsistency, and the system of empiricism thereby encouraged. *They* only are inhumane, who oppose the republican progress of the sciences. Practitioners, old and young, licensed as at present without being tested in the clinique, when proceeding to treat their poor or rich clients, must unavoidably be in the predicament, as illustrated by Dr. Abercrombie, when speaking of some mediciners as of men armed with clubs and striking in the dark: if they chance to hit the disease, they cure their patients; but they may miss the malady, and dispose of the invalids—more quickly, perhaps, than the complaint would have done if left to itself.

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[1] [The student will find many cogent observations of collateral interest, closely concerning his success and peace of mind, as a practitioner, in the writings of Professor Lizars. See preface, pp. 9 and 11, of PART II.; PARTS IV. and IX. prefaces, passim; and more particularly, of PART VI. wherein, *inter alia*, after suggesting that the candidate be examined, and requested to perform experiments upon CHEMISTRY, in the professor's laboratory; on MEDICAL BOTANY, in the Botanic Garden; in the Dissecting-room, upon practical and SURGICAL ANATOMY; in the laboratory of the teacher of MATERIA MEDICA and PHARMACY, "let him distinguish the different medicines presented him, state their doses, and, lastly, compound some of them:"—the professor adds—"fifthly, *let him enter the wards of the hospital, name the diseases of some of the patients, and prescribe for them.* Were such tests of a young gentleman's abilities published to the world, I feel confident, that the reputation of an Edinburgh degree, would attain a still greater celebrity in the estimation of the public, than it has hitherto acquired. There is nothing novel or chimerical in the proposed amendments, which have in fact been adopted and put in practice, for some years past, in Copenhagen, on conferring a surgical diploma." See "*A system of Anatomical Plates*, with descriptions, Physiological, Pathological, and Surgical Observations," by JOHN LIZARS, F.R.S.E. &c. &c. Edinburgh.]

How different would be the result, were the plan recommended generally acted upon! The first *approach* to error, on the part of the student, would be promptly rectified. Pupils, so trained, would be strengthened where weak, and confirmed where strong, and would be possessed of true experience, to the advantage of the community, among which they should subsequently settle.

When the statutes of the medical school of the University of Vienna were recast, it was expressly desired that pupils, under proper direction, should attend to the sick. Tissot, on taking charge of the hospital at Pavia, expressed his conviction, in his *Essai sur les moyens de perfectionner les études en médecine*, that pupils would instruct themselves much better by actually taking care of the sick, than by merely seeing them treated; that not only would each be induced to give his attention to the patient under his care, but that *all*, most likely, would attend with more interest to cases treated by fellow-pupils, than to others wholly under the care of the professor. Ought the fear of being ridiculed, and held up as professional enthusiasts, prevent what was done by Van Swieten and Tissot, in 1785—and which has been found so beneficial in many of the cliniques of Germany, France, and Russia—from being introduced into the hospitals of London, Edinburgh, Dublin, Glasgow, St. Andrew's, and of other parts of the United Kingdom?

They only who have witnessed the evils incident to throngs of students crowding round a professor, can duly appreciate how desirable it is, either that each instructor should take charge of fewer beds, or that some system should be instituted, by which pupils might be enabled to observe and record the progress of such cases as might either fall to them by lot, or be otherwise determined. In some continental hospitals, three or four hundred patients —occasionally even more, are consigned to a single professor. It is physically impossible that the time and attention necessarily so much divided, of any individual, can suffice for rendering justice to the wants of so many sufferers. Expressly to obviate such inconveniences, special cliniques have been instituted at Paris; although not many years have elapsed since a single professor monopolized the surgical service at the Hôtel-Dieu. To the advantage of patients and students, however, that system is ended; and as at Lyons, each hospital officer is now charged with the superintendence of only a specified number of beds. The utility and efficiency of a clinique depend, not upon the number of sick hurriedly prescribed for during a visit, but upon the mode and care with which the attention of pupils is directed to the cases.

In the sciences, as in the arts, subdivision of labor is attended with many advantages. If, therefore, in large clinical schools, supplied with sufficient *matériel*, different sub-departments were instituted, pupils, influenced by special tastes and predilections, might see a great number of special diseases, and labor as well as time would be greatly economized.

Were attention to the public health not so strangely unattended to in England,—(for in what civilized country is MEDICAL POLICE more neglected?)—a central institution, whither all sick applicants should be instructed to previously present themselves *seriatim* for examination, would be provided in every populous city; so that each patient might thence be consigned to certain hospitals or wards, conformable to the nature of the malady.[1]

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[1] [A different system, however, from that permitted in DISPENSARIES, would be required. Valuable as are the latter institutions, are they not, in some respects, crying nuisances to the public? The question may be asked, if there be such a thing as CONTAGION, (!) so long as a mass of human beings, labouring under various diseases, are permitted to promiscuously assemble in a small apartment. Can any means for multiplying febrile affections be surely more operative? Think of the inconsistency of the quarantine laws, by which a commercial country is often vexatiously fettered—being rigorously enforced: and yet while cargoed ships were detained for weeks by an embargo, after having quitted an unhealthy port—MONTHS *previously*, coaches and railway carriages crowded with people and goods, were permitted to keep up the communication between city and city, where pestilence was prevailing, and from which passengers passed and repassed, in a *few* HOURS—*direct* from the locality of the epidemic contagion! Under suspicion of the fomites of cholera, ships were made to ride quarantine; and yet individuals walked to dispensaries with many symptoms of this malignant fever upon them, and mingled with the throng of men, women, and children, variously indisposed. A physician to one of our Liverpool charities assured me of this as a fact: A man presented himself in the box for examination, with the disease in active operation upon him. The patient, waiting for his turn, had been standing among the crowd of paupers, whom, we must suppose, from the combined influences of drunkenness, filth, dejection, and anxiety of mind, must have been thereby possessed with an adapted predisposition for the Briareus hand of disease—and particularly contagious miasmata—alighting upon them with effect. Can it be seriously and fairly questioned, that so long as this indiscriminate system is unreformed, dispensaries actually prove as hot-beds of contagion, and must disseminate disease among the public? Were the sums annually subscribed by the benevolent and the ostentatious to dispensaries, expended for the benefit of the poor, in support of such a system as the following, sundry abuses would be avoided, and vast and palpable benefit to the public otherwise secured:—Divide each town into districts, appoint a general practitioner to each, with instructions, from a Committee of Control, to discharge his various duties to the sick (*paupers* ONLY) of the district, at a stipulated salary. At stated periods of the year, cause each officer to present a report, and render an account of his stewardship; and so on with the details. Invalids would thus be promptly examined as reported; and were the cases febrile or contagious, sufferers would be forthwith removed, if possible, to the appropriate hospital; and thus the disease would not be aided in spreading, as to a certain extent must be the case, if the patient goes among other applicants to the dispensary. Thus, the health of the public would be preserved, and the poor much more efficiently served than at present. There is nothing chimerical, or novel, in what is here suggested. By a french report, now before me, a system somewhat similar has been found, from the test of a protracted trial, to "work well" and advantageously in France. Among the many benefits which

By the system of centralization pursued in Paris, visitors, according to the direction of their studies, can devote their attention to the maladies of infants and children, under Guersent and Jadelot; or attend the practical lectures of Alibert, Biett, and others, on diseases of the skin; or add themselves to the host of interested and rewarded listeners to the instructions of Recamier, Louis, Cayol, Rostan, and Bricheteau. What medical man ever resided in the metropolis of France, without being induced to repeat his visits to its various cliniques! The ability and fame of the late Baron Dupuytren—the "Napoleon" among the surgeons of his day,—of Lisfranc, and others, as operators, have attracted foreigners from almost every country in the world.

In every faculty, would it not be well if elementary, as well as special cliniques of perfection, were instituted? A systematic and progressive circle of education would thus be chalked out. It is the observance of such a system which imparts so much superiority to the Polytechnique School of Paris. Its interior organization scarcely admits of improvement. The duties of master and scholar are admirably defined. Studies are entered upon in determinate order, and not by caprice or chance. After being well grounded in theory, the pupils are tested by studies of practical application. How great the contrast presented by some british medical schools! Without any plan of study but one conflicting in principle, and though replete with excellent theory, void of available means for practical experience—what useful instruction, by possibility, can be ex-chaosed from such elements?

Among other modifications of the clinique, pupils should regularly witness the initiatory examination of patients applying for admission into the wards. Regular

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would result from the adoption of a similar plan, in this country, every district medical officer, from the control of the general committee, and the subdivision of labor, would be not a nominalist but a realist; and were there more of the latter than the former holding appointments in medical charities, the public, as well as the profession, would be signally bettered.]

consultations of this kind are conducted in the Hôtel-Dieu of Paris. Students are thereby benefited, by opportunities being afforded them of becoming conversant with the proper mode of examining the sick at the first visit—a practical department of education all but, if not quite, neglected in Great Britain.

It is a great error to suppose, that a large hospital and many beds are essential for efficient clinical instruction. Yet the present regulations of the Royal Colleges of Surgeons and Physicians, and of the chartered Universities, by insisting on hospital attendance where there are "not fewer than" a given number of beds, to qualify candidates entering for examination, banefully encourage the continued propagation of unsound notions upon this point. Of what men were the clinical labors ever more effective, more productive of good, than those of Duncan and Home, and of the revered Cullen ? Had *they* a large hospital in the old town of Edinburgh, always containing upwards of 80, or 100 beds ? Were the establishments at Vienna—ennobled by Stoll and De Haen,—was that at Pavia, from whose history the names of Frank and Tissot are inseparable,—were the practical schools of Gottingen and Copenhagen other than hospitals, *limited in extent*—institutions which it is for the interest of humanity and science ever to increase? Nothing brings science and scientific men into greater discredit, than attempting too much at once. Stoll's and De Haen's hospital contained *not more* than twelve beds; and that of Frank, at Pavia, twenty-two! Fouquet refused, upon principle, to attempt, even, to superintend more than twenty-five cases under regular treatment.

Elementary medical instruction, then, may be advantageously prosecuted in provincial charities, however scantily provided with beds. To assert that adequate resources are not afforded by country infirmaries, is a charge or a confession tantamount to either their organization being essentially defective, or to disinclination towards, or to vague conceptions of, the proper mode of teaching medicine at the sick-bed. If difficulties exist, their continuance depends, neither on the want of essentially necessary material, nor on the true nature of charities, however small, if unsophisticated, but upon individual indifference or incapacity, and unreformed abuses incident to ENDEMIC CONSTITUTIONS, so to speak, and measures radically faulty.

Though hospitals, formerly, were intended only for the reception of patients, those of this intellectual age should minister to more exalted functions. In addition to the grand purpose of their founders and supporters, they should also serve for the instruction of pupils. The opinions, unfortunately, of many influential non-professional men, governors, and petty committees to charities, though otherwise intelligent and benevolent in the extreme, are, notwithstanding, hostile to the introduction of clinical tuition in provincial hospitals. Such objection can emanate only from prejudice, narrow views entailed by public ignorance of the state of Medicine, and of the fact, that hospitals constitute the truest and most fruitful sources of medical instruction.[1]

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[1] [The following quotations from an ably-penned "Report by the COMMITTEE of INQUIRY, appointed by the Annual General Court of Governors of the *Dumfries and Galloway* Royal Infirmary" (1833) exemplify the feelings entertained by even the most well-meaning and disinterested *non*-professional committees of charities in general. Hospital instruction is discountenanced in these words:—"This House is not a school for the acquisition of medical knowledge, but a charitable establishment for the exercise of that knowledge for the relief of human suffering."——"The relief of the poor from sickness and pain is not only the primary, but the *sole* object of this institution; and so long as the promotion of this object is made the sole aim of all your laws and practice, you will continue to enjoy the confidence and the gratitude of the poor, and your wards will be filled as heretofore. But mix up with this object considerations of private or professional benefit—give this House the appearance even of a medical school—excite suspicion of your motives, and you endanger the very existence of the institution. The opinion will instantly prevail, that this is no longer a house of mercy for the benefit of the poor, but one of experiment, where professional knowledge is to be acquired, to be afterwards used for the benefit of the rich, and the profit of the profession."—*Report*, p. 24.

Every medical man interested in the advancement of science, and every humane governor, must regret the promulgation of such opinions, if aware of the indisputable fact, that in hospitals where clinical medicine is regularly taught, It seems remarkable, observes Dr. Thomson, "that the regular delivery of clinical lectures on physic and surgery should not everywhere be regarded as a fundamental and necessary part of the medical constitution of all hospitals for the reception of the sick and diseased poor, that are erected and maintained at the public expense. That the primary object of such institutions is the relief and cure of the patients admitted into them, is unquestionable; but

the interests of the poor are *thereby* powerfully and unequivocally promoted. Few provincial infirmaries enjoy more available resources for possessing students with the elements of practical medicine and surgery, than that of Dumfries. I had frequent and prolonged opportunities of judging. At the end of the winter session of study at the university and schools of medicine in Edinburgh, many enter this institution, as visiting pupils, during each summer and autumn. The absence of any thing like a *mob* round the beds, must enable the young and attentive observer there to derive immeasurably more correct elementary information from an attendance of three weeks, than from that of six months in crowded metropolitan hospitals. Conversational information is most readily communicated to inquiring pupils, by the regularly attending officers. If clinical remarks were made, and the attention of pupils directed to instructive cases—to the elements of Diagnosis and of Therapeutics, the advantages afforded by this establishment would still be turned to only a tithe of the account of which they are susceptible ; and how obviously to the benefit of its sick inmates !* Clinical Reports, hitherto diffidently withheld, of the practice of this hospital, could not fail to enrich the records of medicine.]

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* The *Dumfries and Galloway* Infirmary has not only "been able to meet, in the most satisfactory manner, all the usual demands on its beneficence, but has realized funds, estimated at not less than *eight thousand five hundred pounds*, without taking into account the buildings and furniture." Exclusive of many thousands of out-patients, the institution has given relief or shelter, in little more than fifty years, to *eleven thousand in*-patients.

Salaries.—" For many years, all the medical office-bearers acted gratuitously, with the exception of the Apothecary and Clerk." In 1792, Government allowed five shillings a day, "in consideration of Military Patients being received into it. This sum was divided betwixt the Physician and Surgeons"—half-a-crown to the former, and fifteen pence to each of the latter. This was the commencement of regular salaries. The Government allowance was withdrawn in 1821. In 1822, the physician was allowed 40*l*. and each surgeon 25*l*. "Again, on the 3d of May, 1824, the salary of the Surgeons was farther increased to 40*l*. each, in consequence of the great increase of patients, and consequent trouble. The present salaries are, Physicians, each 20*l*. Surgeons, 40*l*. each." "Pecuniary remuneration (observes the Committee) if not an inducement to become a candidate for such an office, and an additional stimulus to the zealous discharge of its duties, can hardly fail to prove both ; and has, at least, the highly beneficial effect of removing from the minds of the managers those feelings of delicacy which might otherwise interfere with the exercise of that control, which they should, at all times, possess free and unfettered."

Mode of Election.—By a provision in the charter, the medical officers must be either re-elected, or changed *annually*.—Report cit. pp. 16-17.

it seems to be still very imperfectly understood how great the advantages are, that would result to all classes of the community, were the opportunities of professional improvement, which attendance upon hospitals is calculated to afford, extended to as great a number of those engaged in the study and practice of Physic and Surgery, as may be consistent with the main objects of such establishments, when it is intended by the public that the poor shall receive every advantage which money can procure for the rich, from the attention, skill, and humanity of able physicians and surgeons. While clinical lectures are, in an eminent degree, useful to practitioners and students, it is no less certain that they must *indirectly* benefit the *patients* who are the subjects of them: for if there be any thing which can induce the rash practitioner to pause, the inconsiderate to reflect, or the ill-informed to seek for instruction, it is the *necessity* of explaining the grounds of his practice, and his opinions of disease, to an audience composed of well-educated medical students." Though it is almost unnecessary to illustrate what must be apparent on very ordinary reflection, the opinions of Mr. Lawrence may be added:—"The provincial hospitals," says he, "many of which equal in the number of their patients the smaller hospitals of London, afford every opportunity of acquiring that most valuable kind of knowledge which is derived from experience. The practical study of the profession is here conducted with peculiar advantage, from the comparatively small number of students, and the circumstance of their attention not being distracted with a multiplicity of other objects. The number of persons to whom instruction can be imparted at the bedside of the patient is circumscribed within narrow limits. However great the ability and knowledge of the practitioner, and his desire to communicate information, however zealous and attentive the students, the examination and explanation of a case, and its principles of treatment, can be made useful only to the small number who are able to see the patient, and hear the practitioner."

A clinique, properly conducted, combines every requisite for exercising pupils in correct OBSERVATION—the only royal road by which they can acquire the principles of true experience. The advancement of sound practical and educational medicine mainly depends upon the progress of bedside medicine. The resources of provincial hospitals, however confined, should therefore be availed of to the utmost. The capitals should show the example of what ought to be done in the provinces. It matters little through what honorable channels scientific knowledge and instruction are acquired, provided, only, that they *are* attained and fully communicated. It is otherwise in the sciences than in the arts: for though competition and over-supplied markets occasionally blunt the edge of industry, yet emulation in the sciences profusely fructifies good, and powerfully advantages the public. Marked and progressive increase of health, strength, and consequently of wealth, speakingly attest the wisdom of commercial communities responding more and more, to the awakened disposition now happily evinced by them, to encourage science and the efforts of scientific men. A complete modification in the system of british medical instruction may be confidently looked for. The workings[1] of our charitable institutions will be reformed. National hospitals under the control of government will, at no distant period, be instituted. Possibly the number of office-bearers will be increased and determined by the number of beds, and clinical instruction required, *ex officio*, to be regularly furnished to pupils. Thus, and, perhaps, thus only, will an essentially practical direction be communicated to medical education, and pervade its every department, when thoroughly re-organized under the long-withheld PROTECTION OF THE STATE.[1]

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[1] [It has been argued by several, and with some show of reason perhaps, that as the existing medical charities are supported by *private* and voluntary subscription, the interference of the legislature is thereby precluded. That parliament, however, will sooner or later interfere is more than probable. As regards such a subject as MEDICINE, all legislation should have constantly in view, the safety and advantage of the people. Parliamentary interference is sanctioned, and the pseudo-system of non-intervention is unjustifiable, where the general good of the many is being sacrificed for the exclusive benefit of the few. Where there is a WILL there is a *way*. To put down slavery, the *private* rights of the West India PLANTERS, and of other proprietors, were, from principle and the force of public opinion, interfered with prospectively, and will be duly and justly indemnified. Upon a little impartial consideration, truly humane and benevolent subscribers to hospitals and medical charities throughout the counties of Britain and Ireland, so far from opposing, would hail the interference and established control of government in their respective managements, as a blessing. Local heart-burnings, petty jealousies, hot-blood, and charges of mis-government and corruption, of party or of individual injustice, would, in great measure, be avoided. How devoutly to be wished!]

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[1] [Though not procinct, it would be idle to speculate when certainty is so near respecting the probable consequences of Mr. Warburton's Medical Reform Bill. Whatever be its scope and regenerating influence, physicians and surgeons have the respectability of their profession in their own hands. Every reform, like CHARITY, should begin at home. Do the medical faculty stand true to their individual interests, by not standing true to the collective interests of those ostensibly linked in common brotherhood of purpose with themselves? Is it not, chiefly, desirable that reform should tell upon *erroneous public opinion*, and thence govern and regulate THE PRESSURE-FROM-WITHOUT? Professionally, medical men are estimated by the adscititious, net by the intrinsic. How can a physician or surgeon be even found deficient, unless tried? Study, however perseveringly ardent, or well-directed, will not, without the adscititious, gain public confidence. That it may secure it when proffered, is true.

To contrast the conditions of continental and british medicine, would be nationally painful, rather than invidious; for, unhappily, there is no just parallelism between them. The unprotected condition of medicine, and consequently of medical men, is a laughing-stock to intelligent foreigners, who politely affect to wonder at and pity the country, in which the healing *art* is not allowed to be cultivated as a science, and is, consequently, pursued as a huckstering trade. The profession, as a body, cannot justly be blamed. Medical, are the most unprotected of all professional men in this country, to an extent, indeed, which, unless fairly inquired into, would be ridiculed as preposterously incredible. The issue of civil and criminal trials substantiates such an assertion, as an undeniable corollary, educible from the page of history. Looking truth in the face, if it better not, assuredly never worsens, matters.

Much has been said, and "*a trifle*" has been written, on the *decline* of science in England. Though the term be relative, it can scarcely be justly applied to the existing state of Medicine, backward though it *is*. For, to what point has BRITISH MEDICINE been *allowed* to attain, from which it could by possibility be said, in the legitimate spirit of the epithet, to have declined? When the load of prejudice and erroneous public opinion are removed, and the springs of its machinery eased, its own inherent energies, once unfettered, will speedily work out its aggrandizement. Extraneous influences cripple the resources of individuals, and mar the most laudable enterprizes. To quote an apt passage from Lord Brougham's revised Speech on the Pension List—(See Mirror of Parliament, 24th June, 1834)—"Talk of *midnight oil*, and the *sweat of the brow!* Will this avail a man under the present system? A man may waste all the oil in his cruets, and he may waste the sweat of his brow [brain?] until there is no more sweat to come out of it, and all this will avail him nothing!" Up to the date of this sheet passing through the press, (*June*, 1835,) the Medical Reform Bill seems, in the legal phrase, to have gone *asleep!* What BRITISH MEDICINE needs from a REFORMED PARLIAMENT, is, literally and colloquially, a free stage and no favor.]

SECTION III.

HINTS TOWARDS THE GENERAL IMPROVEMENT OF THE METHOD OF TEACHING BEDSIDE SURGERY; WITH ILLUSTRATIONS OF SOME OF THE MANY RECIPROCAL DUTIES OF CLINICAL INSTRUCTORS AND PUPILS.

After a bad crop, we should plough down, and instantly begin to sow.—*Seneca.*

Custom has sanctioned the continuance of distinct and separate professorships for clinical medicine and clinical surgery, not because of there being any real distinction between surgery and medicine—for the line of demarcation is only conventional—but because benefit accrues from the special direction of mental application in the Sciences, as from the subdivision of labor in the Arts. In their respective cliniques, however, the professor of medicine finds it impossible to avoid transgressing, occasionally, beyond the circle within which his duty has been abstractly circumscribed: and the surgeon unavoidably trenches upon the manor of the physician, and reciprocates the trespass with interest. In like manner, the received division of pathology into *external* or surgical, and *internal* or medical, though essentially unreal, is educationally useful. The relations of a subject, otherwise horizonless, admit of being subdivided, and thence narrowed, so as to suit the comprehension of youthful minds. All such divisions subserve a similar purpose as that which Nosology ministers to. If, however, instead of being used merely as necessary or expedient helps, as ropes and ladders in the besieging of a city, they are not thrown aside or removed when no longer required—they become worse than useless.

Instruction should be progressive. If there are pioneers to conduct advanced pupils up to the special threshholds of philosophy, why are there not also guides to conduct within those assembled outside, and to initiate them into the mysteries of the inner temple? There are professorships of Surgery to the Royal Colleges of London, Edinburgh, Dublin, &c. Why should there not be professorships of Clinical Medicine to the Faculties? The future reputation of such organized associations, to a considerable extent, is herein implicated. In addition to being able to fluently impart information—so far a gift, but in greater measure an acquirement—the professor of clinical medicine to the Faculty should possess other desiderata, such as the series of mixed endowments capacitating him to generalize and combine, to originate, suggest, and start out new tendencies, for the individual and collective consideration of his brethren. The circle of clinical study should be as complete as possible. Elementary cliniques, conducted so as to present a general and connected view of practical medicine and surgery, are much wanted in this country. Even, however, as matters exist, professors inadequately avail themselves of their respective positions in either of the special cliniques, who do not follow out, and exercise the minds of their students in the sciential tendencies, suggested by the relations which subsist between external and internal pathology. How interesting, on the one hand, to trace the development, progress, terminations, sequelæ, and influences, of what may be styled *the fevers of surgery;* and the constitutional disturbance coincident or consequent upon local lesions, whether functional or structural! On the other, how equally interesting to compare, analyze, and contrast, with the data of the former, those obtained by observing the acme and decadence, the effects and influences exercised upon local disorder or disease, by *essential fevers,*—to deny whose existence is as unphilosophical and vain, as to refuse that maladies may originate in the fluids as well as in the solids, and that the physiology and pathology of the former must reciprocally and naturally influence those of the latter.

To pass to other chief points to be more or less travelled over, or just touched upon. The absence of any thing deserving the name of order or method, regulating the student's entry upon clinical duty, has been considered in the preceding Section. Methods are in the sciences what machines are in mechanics,—they increase power and economize time.[1] Students, for reasons sufficiently obvious, should pass their novitiates in the surgical, before regularly visiting the medical wards. Diseases conventionally allotted to the surgeon, are not only, generally, external, but their symptoms are more cognizable to the senses of beginners, than those of internal or distinctly medical affections. Boërhaave considered surgery as external medicine, and as one of its integral and subordinate parts. Internos morbos externis reapse congruere; externos chirurgicos primo pertractandos; nec aliter ordinati quid, vel veri, in praxi medicâ fieri posse aût doceri. Those, even, intending to settle in large cities, as Operators, should, after a preliminary course of theoretical study, spend much of their time in the medical wards. Unless acquainted with the philosophy of the healing art, what can they be but gentlemen-mechanics—mere knivesmen, in fact! As to those specially qualifying themselves as Surgeons, properly so called, it is equally indispensable that they should observe, compare, and reflect, for some time, under the eye of experienced physicians in the medical clinique. By a liberal and methodical education alone, can pupils perceive that TRUE SURGERY consists in the saving, not in the lopping off, of limbs; and when operations seem necessary, by this only be enabled to appreciate those critical states of constitution, in which reflected or constitutional irritation, consequent upon the incautious removal of a limb, most probably would determine a fatal effusion of pus (or other organized matter formed in, or separated from, the blood during irrational and hectic fever) upon some internal organ. The vital powers of a patient, otherwise with propriety intended to be operated upon, may be so far spent, that death on the table may be the consequence, even before the catlin of any knifesman, however dexterous, has been insinuated into his flesh.

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[1] Laromiguière.

That reprehensible rashness, often mistaken for decision of mind and talent, by which surgery and medicine are brought into discredit, depends upon defective education, confined views, or ignorance of the reciprocal relations—identity rather, of the philosophies of medicine and surgery. The surgeon who neglects the study of medicine will frequently blunder, because ignorant that manual aid is far from being always the most efficacious: the physician, per contra, who affects to despise Operative Surgery will not sufficiently rely upon the succours of surgery: and, probably, will deceive himself by believing, that diseases which cannot be cured by medicines, must *ipso facto* be incurable.

A chief purpose and characteristic of the clinique is much neglected by some who hour after hour discourse, in the lecture-room, and hold no conversation with the pupils, beyond a stray remark, while in the wards. Arguments, in favor of the omission under notice, may be urged; but they are at best but plausible, and tell upon the feelings and prejudices, not upon the judgment. No enthusiasm, no ardor in pursuit of science, nor any desire to farther the education of pupils, can justify such inhumanity as a professor's expressing, in cold blood, an unfavorable opinion of some anxious or dying creature's case, literally at the very bedside and within the hearing of the sufferer.[1]

Such conduct is in the highest degree reprehensible. It is to abuse, not to use, the objects, advantages, and means of bedside tuition. Objections, therefore, founded thereon, to a professor directing the attention of pupils to the cases in the wards, are unjust and undeserving of serious refutation. The wards are not the proper place for delivering a *lecture;* but general experience goes to prove, that conversational remarks immediately after quitting, or just before visiting a patient, produce impressions very different, in point of permanency, from those effected by the most painstaking discourse delivered in another and distant apartment. Practical observations may be made in the presence, without of necessity within the hearing of patients. The plan pursued in the surgical clinique of Edinburgh can scarcely be improved upon: it is doubtless observed in other similarly well-regulated institutions. For instance, on examining a patient whose case presents a new or more pronounced symptom, after passing a few yards along the aisle of the hospital, by one of those characteristic and significant signs, of which students readily get into the secret, (*ex. gr.,* the eyes being directed to the floor, the hands being put into the pockets, or a finger being thrown up,)—either of the professors is instantly surrounded. Remarks in an undertone are then made beyond the ear-range, either of the sufferer or of those in the adjoining beds. Pupils who may not have seen some important symptom or change, are apprized how to look for it; and others who may have seen but not perceived, or perhaps not reflected or known the value of the symptom, sign, and indication,—are thus simultaneously assisted towards attaining *true* medical experience. Surely such a plan is unexceptionable?

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[1] "Dr. Clark relates that he has heard the case of a phthisical person explained in all its bearings, by the professor at Bologna, *in the patient's presence.* In another instance, which occurred at the same place, a female laboring under cancer uteri, burst into tears on hearing a detailed account of the nature of her complaint!" See Dr. Graves's paper, previously referred to, *On Clinical Instruction*, in the *London Medical Gazette*, vol. 10.

Some clinical teachers, through misapprehension of the nature of their duties, indulge in lengthy digressions on disease in general, losing sight of the particular case which should constitute their theme. This is clearly to confound the special attributes of the clinique, with those of a course on general pathology. The grand purpose of bedside medicine is to discard the scaffoldings of Nosology so as to *individualize* disease; to present whose portraiture experienced professors proceed as artists, and analyze its cardinal features, to the end that pupils, so initiated, may be qualified to practically apply their preliminary education acquired in the class-room. Clinical instruction, then, to be effective, should be conducted as closely to, and as much as possible at, the bedside of the sick, as is consistent with the most scrupulous adherence to the dictates of humanity. Above all, the cue of every conversation and subsequent lecture should be furnished by cases actually under the eyes of students. No other method, in the present state of science, seems more expedient; and as none is so well adapted for educing tests in order to invalidate or strengthen the general "facts," whose aggregate constitutes the limitless domain of PATHOLOGY, it should be adopted and farthered to the utmost, until superseded, if by possibility it can be, by a better.

In addition to following an exact and simple method in illustrating the cases, by a running commentary or otherwise, each observation in the lecture-room should be introduced by a special notice of the ward the patient is in, the number or position of his bed, &c. Would it not be highly advantageous to commence the yearly course by studying the most ordinary diseases, instead of commenting upon cases as promiscuously entered upon the hospital records? The diagnosis of maladies is of various degrees of difficulty; and in the acquisition of scientific knowledge it is advisable to proceed from the known to the unknown, from the simple to the difficult. Frank, of Vienna singled out successively, for illustration, patients variously affected. Beginning with acute diseases, he aptly illustrated the class "Pyrexiæ" by cases of *intermittent* fevers, in which the cold, hot, and sweating stages are so markedly pronounced. He ultimately passed to the study of chronic diseases, treating, however, at first, only of such as were curable.

Where there is field for observing a classified arrangement, it is advisable to treat first of physical lesions, or those caused by mechanical violence or chemical actions, —as fractures, scalds, burns, &c. Secondly, of organic diseases, as ulcers and tumors. Thirdly, of functional disorders, as the exanthematæ and essential fevers,—dyspepsia—hysteria. This method is by no means unexceptionable. Any plan, however, is better than none at all, for the very imperfections of a defective one will suggest a better. Just as the food should be suited to the powers of the stomach, so should the ideas of beginners be first excited and exercised by the tangible and the apparent. By reflecting on impressions communicated through the medium of the senses, the intellectual powers are disciplined, and prepared for grappling with the abstract and metaphysical.

Science feeds upon facts, and is nourished by their digested accumulation. There is ample scope for improving the clinical service by collecting and classifying not merely the histories of diseases entered in the journals of the house-clerks, but likewise the observations re-cast by pupils from their clinical commonplace-books, with a condensed summary of the remarks committed to paper from recollection of what occurred during lecture, or at each conversation in the wards. By monitors and inspectors such a system may be easily reduced to practice, throughout any number of students. In addition to materially promoting the observance of order and method, it would tend to steadily farther the acquisition of individual experience, as the attention of clinists would be kept continually on the alert. To have a supply tendered, it is only requisite to create a demand. Ambition, the love of distinction and applause, are never more susceptible and readily called into operation, than during the third septennial period of man's existence. By occasionally addressing suitable questions to students, in presence of their compeers, the feelings or appetites just specified, which grow by what they feed on, are worked upon; and it merely requires discriminating encouragement to be accorded to those who evince proofs of attention and diligence, with general judicious management on the part of the professor, to sustain awakened zeal, and that honorable spirit of rivalry which is ever fruitful in happy results when grounded on emulation.

Few, if any, clinical instructors can be, simultaneously, effective both as quarrymen and as architects. In collecting facts, pupils in the continental cliniques are of the greatest service to their professors. Acting upon the instructions with which they are provided, details are carefully collected by them, and are arranged according as they seem to corroborate or weaken the professor's views. Before reliance can be placed by the professor upon the observations amassed by pupils, it is necessary that the latter be conversant with the correct mode of questioning and examining the sick. Though the importance of this part of the art of medicine is indisputable, few practitioners discharge it in a manner either satisfactory or creditable. The unavoidable consequences of carelessness or inefficiency in the first examination of the sick, are mistaken or inaccurate diagnosis, and hence whatever treatment is adopted cannot be conscientiously satisfactory, even if it should be casually or empirically successful. As a pilot should have a destination in view, and a chart by which to keep upon his course, so should the medical man have a definite object and a specific reason for every question addressed by him to his patient. Without a clew to his inquiries, the young practitioner will pass, incoherently, from one object to another without the remotest connexion, existing, fancied, or real. How necessary then it is, that the professor should outline at the bedside, and inculcate by example, an appropriate mode of conducting a systematic examination of the sick!

As diseases are manifested by symptoms, through whose medium the changes in a function or structure are signified, observation is obviously the sole channel by which they can be ascertained. The senses are the instruments of observation. How vast the store of facts which has been and may be furnished, by a methodic use of the senses! The *eye* has ever been regarded as the chief instrument of observation. What advanced student is ignorant of the services which the speculum has rendered to the diagnosis, and therefore to the treatment of diseases of the rectum? Had not Racamier re-introduced this instrument into general use, the excision of the lower extremity of the great intestine, and the removal of the neck of the womb, might never have been so much as dreamed of. Lisfranc greatly advantaged science, when he induced females to waive false modesty till restored to health, and, by tact and delicacy, afforded his pupils opportunities to acquire dexterity in the use of the speculum. Ducamp's *porte-empreinte*, or impression-bearer, has enabled many to judge of the form, extent, and position of strictures, in the mucous canals. Data so afforded, and which appeal to the eye, aid the scientific surgeon in deciding whether graduated compression upon the plan so much recommended by Mr. Syme and others, will suffice to destroy a stricture whose continuance, by occasioning fistulæ, may be embittering life; or, whether cauterization, or some other modified operation, is essential. There are innumerable objects whose conditions it is most desirable to know, but which, from their minuteness, are indiscernible to the naked eye. In physiological studies, for instance, as regards the tissues of plants and animals, the vital actions of minute parts, and while treating some ulcers, the convex lens and microscope, are powerful resources to the philosopher and to the practitioner. The application of optical instruments to medicine has started many new ideas and valuable practical suggestions. The crudest notions at one time were entertained of the nature of the fibrous-looking bodies engendered in synovial membranes. It was considered as settled, that they were inorganized. Scrutinized, however, by the aid of optical instruments, they really or seem to have a parasitical mode of life, not only distinct from that of the part wherein they are developed, but peculiar to themselves, as true hydatids, whether found in the eye, passed off from or engendered in the urethra, or detected in any of the organized living fluids. When it was known that M. Khun was experimenting upon the scrofulous tubercle, under the microscope, many "addle-pated" practitioners sneered, and soliloquized "*Cui bono?* what practical good can *such* studies confer!" Even though they might not, Khun's assiduity was not the less, but rather the more to be commended, as he undertook the labor and submitted patiently to the requisite self-denial, in the hope that practical benefit *would* result from his observations. His painstaking studies led him to believe, that the tubercular tissue was a parasitical product vegetating where it originated, somewhat as encephaloïdiæ and fungi are developed and nourished. If such prove the mode in which tubercules are organized, the ingenuity and zeal of other men of science will, sooner or later, *apply* the facts to practical purposes. The inspection of matter expectorated during diseases of the lungs, for example, may afford, or lead to, more precise information, by which sufferers will be benefited. Besides, such inquiries are useful, negatively as well as positively. As such they should be encouraged, even though apparently leading to no immediately practical result. It is impossible *a priori* to say, what newly-discovered fact may serve as a magnet to attract together and associate a mass of other isolated facts, meanwhile useless because separate, and out of which may be originated powers, agencies, and suggestions, most valuable to the practical purposes of civilized life. They may also facilitate future investigations, by showing that no benefit will probably result from prosecuting the inquiry: just as commercial men's minds are so far set at rest, respecting the degree of use to this country, derivable from a north-west passage, had it been discovered by Sir John Ross, or should it hereafter be successfully explored by equally persevering adventurers.

Hearing is a sense which cannot be sufficiently exercised by clinical students. Aural investigations have become much more valuable since Laennec's application of the Stethoscope, by which precision in diagnosing diseases of the lungs and heart is greatly aided. Not to multiply instances of the uses of the stethoscope,—is it not by percussion, and by mediate, rather than by immediate auscultation, that the exact seat of effusions is recognized? In operating for empyema, the puncture may now be made, not at random as formerly, but it may be said infallibly, just where the effusion is seated.

The stethoscope should be employed in the surgical as well as in the medical clinique. On the continent, particularly by Mayer, Kergaradec, Lisfranc, Dubois, Renaud, and in this country, partially, as by Drs. Kennedy, Lee, Blundell, and others, it has been applied to aid the diagnosis of various surgical and medical affections; *ex. gr.* the presence or absence of crepitus, indicative of fractures; the whizzing and purring in aneurysm; the sound of the *diphthong*-like fœtal heart in suspected or doubtful cases of pregnancy. Like every useful instrument, however, it has been abused in the hands of ignoramuses and monomaniacs. To be effectively employed, acquaintance with the principles of Acoustics, and, in addition to habit, a musical *memory* as well as a musical ear, are required.

Percussion contributes towards sound diagnosis in surgical diseases. It is the means, in fact, by which the existence of maladies attacking the bones is daily attested. Of this, many, perhaps, are not aware, when using a probe, and deciding by the evidence of such percussion, that a disease is Caries, or incurable ulcer of a bone, or that it is Necrosis, or complete death of a part of the osseous tissue. Further. By *ballotement* or fingering,—a tumour in the uterus may be specified as a child, a mole, or a polypus. It is by percussion, too, premising the use of the catheter, that stone in the bladder is detected. The sensation, nevertheless, communicated by the shock of the Sound against the stone, is occasionally fallacious. The ablest surgeons have been deceived, as the history of all extensive metropolitan practices proves. Men have been tied to the table by knivesmen, and the operation of lithotomy has even actually been performed upon some, when there was no such thing as a stone in the bladder. Bearing in mind the possibility of fallacy, conscientious practitioners do their utmost to reduce the chances of error. To approximate as nearly as possible towards exact diagnosis, they use every available aid within their reach. In addition, *ex gr.* to analyzing the urine, and inquiring whether the state of secretions in the stomach be alkaline or acid, where stone in the bladder is suspected, they investigate if there be an itching, or a disposition to squeeze the point of the penis or elongate the prepuce, and in which, in the calculous diathesis, a sensation frequently persists, as if it remained wet, longer than is the case when the stomach, liver and duodenum, kidney and bladder, perform their actions up to the healthy standard. In addition to data thus afforded, before proposing an operation, and certainly before cutting, not only should the patient be sounded when the bladder is full as well as when empty, but percussion should be resorted to, externally, and the stethoscope thereafter simultaneously applied, if necessary, while the catheter or sound is introduced.[1]

Smelling, though of less value than seeing and hearing, is available for the purposes of the clinique. Practitioners who have had their olfactory organs once impressed with the odours of hospital gangrene, of fungus hæmatodes while ulcered or sloughing, or of the "shows" and lochiæ, if they have a memory for smells, readily recognize, and seldom, if ever, mistake them in after practice.

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[1] [Percussion was employed by Auenbrugger and Corvisart, but only as a diagnostic auxiliar in determining chest affections. A zealous physician, M. Piorry, has prosecuted and extended the application of this mode of physical exploration, and has detected the relation subsisting between many nice sounds, and the physical conditions of the tissues, upon which practical distinctions of great value may be grounded. The majority of the refined diagnostic sounds, of which he treats in his *Procédé Opératoire à suivre dans l' Exploration des Organes par la Percussion Médiate*, are attainable, only, through the medium of his acoustic instrument, the *pleximiter* or sound-measurer, in thoroughly practised hands.

M. Piorry's *Treatise* has not as yet been translated into English! The student will, however, find a summary account of some of the chief views contained in it, in the luminous article entitled, "Exploration of the Abdomen," at pages 7, 8, 9, 10, and 219, of the *Cyclopedia of Practical Medicine*. After perusing the pages referred to, the reader will probably be induced to consult the original.]

Touch.—The exercise of this sense is every day required of the hospital surgeon. Students should have their attention directed to the *quáque versum* pressure, and to the proper mode of conducting the *tactus eruditus* in verifying the presence and condition of an abcess, aneurysm, fracture, laxation, hernia, &c. There is a wrong as well as a right mode in bringing the sense of touch to bear, in diagnosing disease. One lesson at the bedside exemplifying the application of the *tactus eruditus* is superior to the abstract inculcation of twenty precepts in books or in the lecture-room: brevius iter per exempla quam per præcepta.[1]

Before passing to other subject matter, the importance of accurate *measurement* and even of approximate *weighing* too, where possible, must be noticed. There is not a science in which it is of greater moment to interrogate through the medium of the senses, than in that of medicine. On what are observation and experience grounded, if not on data *reported,* so to speak, by the senses? Unaided by such guides, what would either be? Let the student make a point of seeing, touching, and hearing, in the wards, whatever may there be seen, touched, and heard.

Too high a value cannot be attached to the disciplining of the senses and the framing of observations. It must not, however, be supposed that the duties of a clinical course consist solely in heaping together a mass of facts, no matter how carefully soever collected. Mere observation is the *basis* only, not the DOME of medicine. The information which facts supply avails science and practical utility, only in so far as it paves the way to the discovery of truths common to a great number of objects. "As laws," says Sir J. F. W. Herschel, "acquire generality, the influence of individual observations becomes less, and a higher degree of refinement in their performance, as well as a great multiplication in their number, becomes necessary to give them importance." (p. 132.) "It must be recollected that so far as our experience has hitherto gone, every advance towards generality has, at the same time, been a step towards simplification. It is only when we are wandering and lost in the mazes of particulars, or entangled in the fruitless attempts to work our way downwards in the thorny paths of application, to which our reasoning powers are incompetent, that nature appears complicated." (p. 361.) "We must never forget that it is principles, not phenomena,—laws, not insulated independent facts, which are the objects of inquiry to the natural philosopher." (p. 14.)[1] Had the MAN OF COS restricted his genius to a barren contemplation of traditionary knowledge,—had he done nothing but add isolated cases to the *rudis indigestaque moles* of existing facts—his name as the Father of Medicine could never have outlived the recollection of the century in which he breathed, and Science would not have possessed one of the finest monuments of human genius—the aphorisms of Hippocrates.[2] The experimental and historical study of facts, the sterile collection of particulars, can never be said to constitute science. Science essentially depends on the combination of facts and of the general ideas which flow from them. The faculty of abstracting is the source of knowledge:[1] it is the method of methods,—the general grammar of all the sciences.

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[1] [It may here be observed, that the habit of gnawing the nails should be studiously avoided by the medical student, not merely because the habit is filthy and vulgar, but because it blunts and destroys the nice sensibility to impressions, whose seat is just where the nails overlap and protect the axillae of the tips of the digits.

In resorting to the *tactus eruditus,* the student should regulate the pressure upon the fleshy cushions at the points of his fingers, and slightly elevate the wrist and arch the hand, so, as to roll forward the delicate and previously defended skin endowed with its exquisite sense of touch, in contact with the part under examination.]

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[1] Discourse on the Study of Natural Philosophy, by J. Frederick William Herschel, A.M.

[2] [Might not the *grain* in the bushels of chaffy treatises on practical medicine be advantageously brought within the compass of a few ordinary volumes, if reduced to the sententious form of Aphorisms?]

In addition to being taught how to seize every symptom, students should be instructed how to connect and groupe each separate phenomenon, and assign to it its significative value. What is the clinist's object in collecting symptoms?—The solution of a double problem. First, Where is the seat of the disease? Secondly, What is its nature? If cognizable to the senses, a well-directed use of them will suffice to discover the seat of a malady. On the contrary, if it elude direct exploration, the seat can only be ascertained by signs derived from analysing the derangement of the actions of organs, or of the functions of apparatus. In some instances the entierty of the systems participates in the disorder or disease. No one, in such cases, who is not misled by bias, prejudice, or self-sufficiency, will venture to impose upon himself and others, by dogmatically assigning to every disease,—

> A local habitation, and a name,

—with the precise air of a disingenuous empiric.

The solution of the second problem presents far greater difficulties, and is of infinitely higher importance. It is here, that the application of the senses is so frequently inadequate, and that it becomes necessary to have recourse to reasoning. Without some method of classifying a chaos of different symptoms, and inductionating signs from them, how otherwise could this question be solved? *Analysis*, as understood by the French, is the great means by which to attain the end proposed. Before proceeding, it is expedient, not to define, for that is scarcely possible, but to describe some of the chief acceptations of this word.[2] When Fouquet speaks of analysis, he does not mean that of geometricians, but of the "philosophe-médecin" specially applied to living bodies, and which constitutes a principal department of the logic, or grammar of the observation, of *vital* phenomena. Again, analysis, as understood by Sauvages and Pinel, was applied by them to the natural history merely, not to the clinical distinction of pathological indications. Their analysis did not separate diseases by particular and essential, but by the most general symptomatic differences only. Professor Berard's views were more comprehensive. According to him, analysis should not be restricted to separating symptoms conformably to the most dissimilar or superficial form, nor agreeably to the most exclusive seat—but in accordance with such of their most marked distinctions as are associated with essential differences in the existing morbid condition and therapeutical indication.

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[1] Thèse sur l' abstraction, par E. Guillaume.

[2] [The student may advantageously gain possession of clear views of a general nature upon the subject noticed in the text, by perusing with close attention Chap. II. *The Analysis of Phenomena*, in Sir J. Herschel's Discourse on Natural Philosophy. See more particularly the summary in paragraphs 94-95.]

Analysis should not be discontinued when pushed to the elements of a compound. All of them should be separately scrutinized, and assembled according to their special characteristics and common relations, and gradually reduced to genera, orders, and classes. The great object is to simplify and get at the most abstract, but yet truest information, by an ascending generalization of averages. These several steps, as general science advances, will conduct to the unfolding of what may be styled APHORISMS, or *axioms, of* ORGANIZED *Nature.*[1]

Analysis, then, merits the appellation of being the art of

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[1] "The nature of abstract or general reasoning points out, in a great measure, the course we must pursue. A law of nature, being the statement of what will happen in certain general contingencies, may be regarded as the announcement, in the same words, of a whole group or class of phenomena. Whenever, therefore, we perceive that two or more phenomena agree in so many or so remarkable points, as to lead us to regard them as forming a class or group, if we lay out of consideration, or *abstract,* all the circumstances in which they disagree, and retain in our minds those only in which they agree, and then, under this kind of mental convention, frame a defination or statement of one of them, in such words that it shall apply equally to them all, such statement will appear in the form of a general proposition, having so far at least the character of a law of nature." (p. 99.)

" It is thus we perceive the high importance in physical science of just and re-ascending from effects to causes, and also of descending from compounds to components. Hippocrates pursued this method, before Bacon laid the foundations and established the principles of his great rules, by which, as Milton observes, the aspect of the sciences was revolutionized, and the face of the world refreshed.

To exemplify the value of medical analysis instituted for practical purposes: Suppose the young practitioner called up in the night to a patient laboring under hemorrhage. The most ignorant individual present could empirically rival, nay, excel, the mere practitioner of routine, and "prescribe" the random administration of some drug, *because* of "somebody else, when similarly attacked, having recovered *after* swallowing it." The rationalist, however, considers himself responsible, if he interfere, for the weal or woe of his patient, and therefore reflects, and must have a reason for what he does. He endeavors to solve the practical problems already noticed. Granting even that he has satisfied his mind, as far as possible, that the

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accurate classifications of particular facts, or individual objects, under general well considered heads or points of agreement (for which there are none better adapted than the simple phenomena themselves into which they can be analysed in the first instance); for, by so doing, each of such phenomena, or heads of classification, becomes not a particular but a general fact; and when we have amassed a great store of such *general facts*, they become the objects of another and higher species of classification, and are themselves included in laws which, as they dispose of groups, not individuals, have a far superior degree of generality, till at length, by continuing the process, we arrive at *axioms* of the highest degree of generality of which science is capable. This process is what we mean by induction; and, from what has been said, it appears that induction may be carried on in two different ways,—either by the simple juxta-position and comparison of ascertained classes, and marking their agreements and disagreements; or by considering the individuals of a class, and casting about, as it were to find in what particular they all agree, besides that which serves as their principle of classification. Either of these methods may be put in practice, as one or the other may afford facilities in any case; but it will naturally happen that where facts are numerous, well observed, and methodically arranged, the former will be more applicable than in the contrary case: the one is better adapted to the maturity, the other to the infancy, of science: the one employs, as an engine, the division of labour; the other mainly relies on individual penetration, and requires a union of many branches of knowledge in one person." (*Sir J. Herschel, op. cit. p.* 103.)

disease is not hæmatemesis, but hæmoptysis, still he knows that the loss of blood is not the disease, but a symptom merely. Knowledge of the seat cannot, *per se*, furnish rational indications by which the pathological condition may be palliated or cured. Unaware of the *nature* of the disease, interference is, at the least, an experiment. By careful inquiry, by analyzing the symptoms, and converting them into signs, he ascertains, for instance, that the hemorrhage depends upon an *inflammatory* hyperæmic condition of the mucous membrane of the bronchi, with suppression either of the menstrual or hemorrhoidal fluxes, and that what the old authors expressed by "metastasis" had taken place; or, more correctly speaking, that reflected irritation, or localized constitutional disturbance has shown itself by hemorrhage from the bronchi, consequent upon alterations in the current, distribution, vital affinities, and properties of the blood.

Hæmoptysis may also occur in connexion with, or in consequence of pulmonary tubercles. It may farther be manifested during a particular kind and stage of pneumonia. The rational treatment in each of those cases, would, perhaps, differ in kind, as well as in degree. So much for the undeniable value of analysis and method, in practical medicine.

Exclusion, as a mode of examining the sick, like whatever is intrinsically excellent, may be abused. Rational and conscientious practitioners, before hastily jumping to conclusions, or precipitating a diagnosis, self-enquire if they have possessed themselves of all the data necessary towards forming a correct opinion. Neglect of this moral duty leads to innumerable, often irremediable, accidents. Hence the mistakes of medical men in overgrown practices.

In examining patients, the wish too frequently is father to the thought. Those of quick, lively, and ill-regulated imaginations are prone to proceed, not gradually and rigorously, but hop-skip-and-jump to a conclusion, the instant a striking phenomenon or symptom is selected.

If a patient appear to wince under pressure exerted by pronging the points of the fingers over the site of the stomach, duodenum, or small intestines, the presence of *gastro-enterite* is forthwith assumed as established, by evidence short only of demonstration. The indiscriminating disciples of Broussaiism would, in such cases, prescribe the application of a crop of leeches, and *la diéte;* or, gruel and slops. If the examination were prosecuted by them, every inquiry would at bottom be directed to substantiate the one-eyed, preconceived notion, formed respecting the seat and nature of the disease. The evils of EXCLUSIVISM in medicine are innumerable. An undercurrent of suppositions is created, and unaware of the misleading influence to which he is insensibly enslaved, the practitioner's observation and reason are pandered or placed, less or more, in a childish state of abeyance.

To illustrate the *use* of EXCLUSION in investigating disease. A patient is accidentally discovered in a state, as if, of utter inconsciousness. It is impossible to glean any information by questioning him. From the account of his friends, it appears that he enjoyed supposed perfect health within an hour of the accident. The bystanders declare, that he fell upon the street, or from his chair. In such circumstances, having no other enlighteners, the practitioner must throw himself upon the resources of his senses and reasoning. By the former he estimates his patient to be about sixty years of age, and observes—that he is strongly built, with large cavities and developed members, tumid face and prominent eyes; that the temporal and carotid arteries beat forcibly; that the lips are passively "pluffed" out by each expiration; that the saliva drivels from the mouth in the form of froth; likewise, that his extremities are cold, with one side of his body as if dead: and, that in addition to involuntary evacuations, the respiration is impeded and stertorous. To ascertain the nature, seat, extent, and curative indications, the rationalist reasons somewhat thus:—He recals to memory the recorded experience of able men; and, as near as may be, this is the order of his self-examination and reflection. What diseases occasion or are marked by loss of consciousness?—Diseases of the HEART, of the LUNGS, and of the BRAIN. 1st.—Is it *heart* disease? No: by careful inquiry as to the previous condition of the functions, he finds that the patient enjoyed his usual latitude of health, and actual examination satisfies him, that the condition of the sufferer's circulation is incompatible with the existence of heart disease to such an extent as to have produced equally sudden and continued inconsciousness. Is it a fainting fit? No: the face is colored; the pulse, though slow, is developed. 2d.—Can it be *asphyxia?* No: respiration and circulation go on, and no asphyxiating agents have been directly applied, so as to have cut off the access of air to the blood in the lungs. 3d.—The BRAIN, *then,* in all probability, *if not positively,* is the seat of the disease? But cerebral affections are very numerous, and often obscure, particularly if chronic. Is it, then, a *chronic* disease of the brain? No, at least, scarcely: and to decide that it is not chronic, of itself, excludes from the inquiry one half of brain diseases, and clears the way towards a more precise knowledge of the unfortunate sufferer's case, independent of the patient having left his friends perfectly well, and of having dropped all of a sudden, while walking in the street, or while speaking with fervor while turning his rattle upon some political question, or while in the act of quaffing a bumper with ecstasy at a city feast. Among the obscure acute conditions of cerebral pathology, it remains to be inquired, whether the disease be congestion, arachnitis, or hemorrhage? It is not simple general congestion, for general effects attend such a state of pathology; and there are local phenomena in the case under consideration. As inquiry proceeds, such questions are negatived, as—is it arachnitis, or are the symptoms referable to the progress of meningitis? The case must be pronounced either as "ramollisment," or as effusion. But the softening of the brain, which produces palsy of one side of the body, is slowly developed; and, as was said, the existing hemiplegia occurred instantaneously. Transudation, or effusion of blood, alone shows itself so suddenly, and occasions loss of speech and power, over one or both sides of the body. The disease, in short, is cerebral hemorrhage—the most frequent form of apoplexy. But to still more precise the diagnosis, the method of exclusion must be cautiously pursued. There is hemiplegia of the *left* half of the sufferer's body. By a well-known law, therefore, the hemorrhage is inferred to be exerting injurious pressure on the *right* lobe [1] of the brain. Were the hemiplegia complete, the effusion—the consequent pressure at least, would be pronounced as having implicated the whole lobe, from its anterior to its posterior part. By such application of the senses and reason, the nature, seat, kind, extent, and indications of a disease, may be recognized with almost mathematical certainty. How important for the patient's well-being, and the practitioner's credit!

Exclusion obviously promotes the solution of important problems in medicine. To beginners, the mode by analysis is as easy and simple, as that by exclusion is difficult. The latter is properly available only to advanced students. In prosecuting investigations by it, the entire bearing of every case must be passed in review before the mind's eye. No method is so valuable in studying chronic diseases. None more conduces to a sound estimate of the influences of sequelæ, or of concomitant or consequent lesions occurring in fevers or acute inflammations, or which are developed during, or after, great constitutional disturbance, in all of which morbid conditions of the fluids and solids, (particularly when the system is predisposed, or has acquired adapted susceptibilities to states of pathology, whether by hereditary transmission, or from the sapping influence of previous constitutional or local disturbance),—the phenomena of VITAL ORGANIC REACTION powerfully undermine the integrity of the economy, and thereby favor the parasitical evolution of latent disorders, and of local organic disease. In a systematically conducted clinique, then, students should be instructed and exercised in the modes of analysis and exclusion alternately, while examining and reasoning upon the pathology of patients.

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[1] Rostan, *Examen du Malade.*

Whatever may be the method adopted for attaining a knowledge of maladies, not to carefully investigate what is the organ and seat affected, is to overlook a means most advantageous for practical purposes. Such information, when possessed, is not all-sufficient, nor is it superior, in the opinion of judicious practitioners, to ascertaining the *nature* of a malady. Incredible as it may appear, some treat their patients without at all informing themselves of the seats of their diseases. Others, satisfied that each symptom is significative of a special organic alteration, run into the opposite extreme, and finically exert themselves in determining, not the integral apparatus, or organ, or even membrane, but the fractional tissue, the latitude of whose organization is said to be morbidly changed. Such imaginary success in precise diagnosis, carries with it an air of science, to some minds most imposing. The candid majority, however, suspend their belief that such a desirable consummation is attainable by the average of the uninspired, in the present state of medicine and of the collateral sciences. Objections to such attempts at recondite diagnosis, lie only against pretenders, not against those honorably striving to profoundly improve this department of the practice of medicine, first, in a manner satisfactory to themselves, and, afterward in endeavoring to equally refine and empower the tact and discernment of their brethren.

Pupils, for the sake of method, should be exercised in observing the phenomena and considering the philosophy, first, of local and constitutional pathology; and secondly, of their reciprocal influences. There are diseases which are local—local in their commencement, and which pathologically influence one or more of the actions or functions of the system; just as was said, there appear to be, beyond rational doubt, disorders which commence *ab* *origine*, in the fluids, and which implicate the entire system—and inversely. The sympathies or interchanges of the actions and reactions of the organism, are mutual and reciprocal. The moving powers of the system, alterations in the impetus, volume, vital affinities, and properties of the blood, being so many media and agents concerned in the production and discontinuance of "Sympathies," abstractly so termed. Every local disease affects, and is in turn affected by, the state of the system; and by a reciprocal causation, constitutional disturbance *tells* upon any locality of the organism, which, to use a conventional form of expression, is in a "low state of vitality." An ulcer supposes the assemblage of certain symptoms, as erosion, pain, an ichorous exudation, &c. Such a solution of continuity, however, is not always induced by similar causes. Certain intractable ulcers which appear on the tibial aspect of the legs of burly tapsters, draymen, and particularly of those of Bardolph habits, whose stamina have been reduced by the wear and tear induced by over stimulation, or by an abuse of blood-letting and depletion, may be curable only by a mixed and seemingly contradictory practice. Instead of always requiring antiphlogistics and emollients, irritable may become indolent ulcers, when an opposite and piebald treatment would be necessary.

The character and physiognomy of most forms of disease, especially of solutions of continuity, in great measure depend upon the state both of the digestive organs, and of the fluctuating condition of the moving powers of the organism. A gradual advance was made to this opinion by various authors, and by the observations of able practitioners, who, though not itched with the *cacoethes scribendi*, nevertheless influenced the current of thought of publishing men, with whom they came into conversational collision. At length, Mills and others, by their views on fever, and, above all, Abernethy, spread those doctrines on the constitutional origin of local disease, from which, or by gleaning perhaps from similar sources of scattered information, Broussais formed, but with a different moulding, the keel, if not, indeed, the entire hull, of his redacted *médecine physiologique.*[1]

Local diseases, on the other hand, produced by chemical or mechanical agents, induce, more or less, constitutional disturbance ; as, the tumult of the system, occasioned by scalds and burns, in the irritable monkey-like temperament of infants and children. It is by the increasing care and success with which the effects of systemic reaction, and of the aroused series of complications, are scientifically investigated, that modern or rational surgery has been elevated from its state of *barber*ism; and from being a mere mechanical art, has been made to assume the dignity of a philosophy. Thus, then, although the majority of our ideas are furnished, from without, by the inlets to knowledge, students must do more than exercise their senses. Reason cannot dispense with the services of the senses, or achieve any good without them. The senses in turn can effect scarcely any thing valuable, without the superadded aid of reason. If reason without the senses, is like a head without a body, the senses without reason, resemble a body without a head.

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[1] [Opinions are not facts. The remark in the text is offered merely as an opinion. If well founded, as it is believed to be, it far otherwise than goes to depreciate the intrinsic merit due to the zealous promulgator of *la médicine physiologique*, and the unsparing critic of such of the opinions of others as tend to check the spread of the " new doctrine."

There are as various kinds of originality in authorship, as there are modes of evincing it. With the truth of the axiom, *Nil novi sub sole* ; one of the Bishops of Llandaff was so thoroughly impressed, that throughout a long official life, he continued to act upon the orthodox advice which he gave to young divines, namely, that they should borrow more than they attempted in the way of *originality*, for the first ten years, at least, of their novitiates. The Bishop was said to have delivered the most singularly *profound* and original discourses of any man of his time. His ingenious mode of proceeding was this : being an excellent linguist, he occupied himself during the week in modifying and translating a sermon, first from the german, and afterwards into french, or vice versâ, and last of all, into the language in which it was to be promulgated. Trusting to his memory, exercised by such elaborate preparation, and carefully *changing the text*, he preached it *extempore*. Several of his critical friends were occasionally struck with the strange jumble of conflicting idioms and doctrines which pervaded his discourses. Not in the least suspecting the real cause, they attributed the violation of the rules of chaste composition, to the effects of the diversified range of his scholarship. The Bishop himself maintained, that had the originals from whose labors he had redacted, been among the number of his hearers, possibly *they* even would not have suspected the *rationale* of the piebald idioms ; and that, had any one, individually, charged him with plagiarism, the complainant would, to a legal certainty, have been non-suited, on the ground of deficient proof, if the case were referred for decision to any two *unprejudiced* umpires.]

With a view to collect and systematize facts, empirical, as well as rational, methods of treatment should be employed, while searching for therapeutical indications, or while testing the ever-varying effects of drugs upon the system, when in a state of pathology. The prepossession incident to particular doctrines, must, as far as is possible, be guarded against. There is the greatest difference between the comparative successes of clinical teachers, in moulding and improving the direction of their pupils' studies. The majority are Sectarians, and consequently the tendency of their instructions depends upon the particular "system" of which they are the partisans. Medicine is a system of sects. Just as there are particular and well-known creeds advocated in politics, so, too, in medicine there are Ultra-Materialists, or universal levellers; Eclectics, or trimmers; Ultra-Vitalists, and Waiters-upon-Providence,—or Expectantists. The influence of these creeds upon clinical instruction, and consequently upon practical medicine, is great—great, to an extent not represented in a proper light to british students.[1]

There is another important source of instruction, requiring the sustained attention of clinists, namely, pathological anatomy, by which the relative value of experience acquired at the bedside is frequently determined. Through the medium of cadaverical examinations, the physician ascends, so to speak, from lesions to symptoms, after having descended from symptoms to lesions. To render the evidence of inspections after death as trustworthy as possible, the exploration should be extended to parts not suspected during life as involved by disease, or as actually its seat; just as, while particularly examining the sick, the condition of all the functions, even of those in whose organs no derangement or disorganization is suspected, should be investigated. Dr. Bright, in his Hospital Reports, has offered several valuable remarks upon this point.

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[1] [Their still greater effects upon the theories of medicine, will be cursorily noticed, with mixed illustrations, in another part of this volume.

It will be matter of deep regret, if the influence of medical FAITH upon practical medicine, in this country, be not speedily submitted to a searching and philosophical *examen*, by some of our many competent authors, in this active day of professional literature and enterprise.]

Before opening the body, the history of the case should be read. Pupils ought to guard against confounding the uniform fundamental lesion with such as is only eventual, or which is referable to the existence of previous disease. Nothing is certainly more difficult, than to satisfactorily determine the proportion and relation between lesions and symptoms. The attempt, however, ought always to be made to connect the traces of disorder or of disease in other parts of the body, with the particular symptoms which heralded, either the particular tendency to death, or the truly fatal termination. The modifying influences of the death-struggle, and of the effects induced by cadaverical decomposition must not be overlooked.

The many advantages conferrible on medicine by morbid anatomy, are not duly appreciated. An extensive field for systematic observation is, in one respect, uncultivated; namely, its application to the precising of the physiological states of organs, at different periods, and in the varying circumstances of life. It is matter of regret, that the example set by M. Billard, in his work on the intestinal mucous membranes considered in their healthy and inflammatory conditions, has not been imitated.

Pathological anatomy, must, however, be considered as the serf, not as the autocrat, of the healing art. That its progress has been retarded, and its cause temporarily injured by the exaggerations of undiscriminating eulogists, cannot justly be doubted. By many it is cried up, as if, already, it were the right arm of the art of healing! In the present state of science, at best is it other than the little finger, so to speak, of the entire hand of the genius of

Medicine: and is it saying too much, that the treatment of disease, if grounded on our existing knowledge of morbid anatomy, is, from the very nature of things, infinitely more precarious, and less rational, than that grounded, even solely, on the data of symptomatological empiricism? Such doubts are hazarded, not against the value in itself of a sub-department in medicine confessedly of such intrinsic worth, though beset with difficulties, neither few nor small,—but against the prejudice and apathy entertained towards pathological anatomy by several, by whom, in fairness, it should be borne in mind, that charges of inadequacy and misdirection are often falsely attributed to a science, instead of to either inability on the part of the instructor, or to misapprehension on the part of pupils. In applying the information furnished by morbid anatomy, it should be especially remembered as a caution, that many pretend to teach what they have yet to learn—thus bringing their maltreated subject into discredit more than misplaced.

How, then, should the question be answered—where does the failure lie, when scarcely any or no alteration is detected, on making certain cadaveric inspections? How hundreds are led away by the sweeping scepticism of a few! Before joining in the crusades preached by certain medical Peter-the-Hermits from such texts, would it not savor less of imbecility to inquire whether the failures of the kind alluded to, do not rather indicate how finite the intelligence, how helplessly unaided are the senses of observers, than prove any insufficiency upon the part of the science? To reply, therefore, that tangible lesions or appreciable changes have not been discerned, is certainly much more becoming than to assert, that "none exist, or have existed!" So much for disbelievers. But there are unbelievers too; and the sceptism of prevention is ever the most childish of any, as the finger of history shows forcibly in the case of unbelieving men of quantity. Ultra-arithmeticians, it would seem, have ever been dogmatical; as in Pascal's time, when more than a poor handful of such sceptics took upon themselves to determine, that there were just

27,000 stars—nor more, nor less, "by these hilts;" for they asseverated, in the spirit of Falstaff, and produced their scratches and calculations, likewise, as an *ecce signum!* After star-gazing, however, through the booned telescope, to peer through which they at first seemed somewhat reluctant, the majestic revelations of that world-reading instrument smote them in hopeful humiliation. Even the most perversely self-sufficient ceased for a time to look, *ανθρωπος*-like, heavenwards, and withdrew, with downcast eyes, to resume their alphabets of the sciences and recommence every thing afresh, as infants even in self-knowledge.

From the combined aid of instruments, and the progress of the allied sciences, what may not be hoped for? Towards the correct diagnosis of chest affections, what was not done by the inventive genius of Meriadec Laennec, with his breast-see-er, an instrument which was, nevertheless, decried by many of his contemporaries, as the invention of charlatanism! Refined and modified instruments, and disciplined senses, may gradually achieve for morbid anatomy, as a subordinate department of general pathology, what the blow-pipe and the atomic theory have effected for various branches of natural philosophy.

The physical analysis of diseased tissues is otherwise susceptible of great advancement. The anatomy of forms, relations, colors, &c. and the terms used in descriptive pathological anatomy, which serve as the bases of surgical nomenclature, (as scirrhous, encephaloid, medullary, tuberculated, melanotic,) again need revision, to obviate the vague and deceptive ideas encouraged by their loose application.

In the opinion of Virey, the study of *monstrosities*,[1] to the physiologist and philosopher, will be the clew by which to interpret the laws of the processes by which nature works out the formation of species. According to this view, pathological anatomy may be considered and taught as a repetition, so to speak, of "embryogeny," throughout a series of beings.

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[1] [In the language of medicine, as in the current phraseologies of politics and literature, words are continually undergoing transitions in meaning.]

By studying the *incarnation* of the product of conception in the human subject, at various periods of its intra-uterine life, a trustworthy approximation has been made to a knowledge of the laws regulating its evolution. By such researches, the explanation of many points of fœtal and infantile etiology, of great moment for practical purposes, and whose nature had been previously unknown, has been unveiled.

Upon the presentation of mal-developed structures, their normal evolution should be explained in the clinique. Spina bifida, for example, until lately, was considered as caused by "a wasting away," or "a dissolving" of the vertebræ; or as a consequence of their absorption, induced by excess of the spinal liquor, noticed by Haller, and re-described by Magendie. To modern pathologists, the excess of fluid in the meningeal sheath is known as an effect, not as a cause. It is an accumulation consequent upon an arrest or anormal evolution of what is technically styled the osteo-genesis of the vertebræ. In connection with this disease, several inquiries which must interest the student are presented. Why should spina bifida be more frequently met with on the *posterior* part of the rachis? Because, by a general law, the anterior of the two portions of the spinal column is ossified prior to the posterior. But why should this abortive evolution more frequently affect the lumbar or cerebral, than the dorsal vertebræ? Because ossification advances, *relatively*, much more quickly and completely in the bones of the back, than in those of either of the two former. This will suffice as a passing illustration of the manner in which the facts of pathological anatomy should be interpreted to junior students.

Instead of being limited, surgical studies should be more extended, and their theory more elevated. Chirurgery is but as a hem upon the garment, or as a fringe superadded to the wreath of Medicine. In addition to possessing the talent of applying manual aid to diseases requiring it, the professor of external pathology should in nothing differ from the physician, in his range of preliminary acquirements. At Cos, Gnidos, Rhodes, Smyrna, Alexandria, physicians were surgeons, and surgeons were physicians. Hippocrates was sensible, however, of the advantage of having the manual part of the great operations in surgery, performed by those exclusively devoted to this branch of the art: Neque vero calculo laborantes secabo, sed magistris ejus artis peritis id muneris concedam.—(Hippoc. *Jusjurand.*)

In hospitals, where the mechanical sub-departments, only, of the surgical clinique are attended to, and where the other duties of the service are slurred over in a superficial and apathetic manner, pupils become impressed with the erroneous supposition, that the study and practice of what, by courtesy, is styled surgery, are more easy, less complicated and by far less interesting, than those of medicine! Surgery properly studied is quite as complicated as Medicine. It has its difficulties and uncertainties, too, which test the discernment, and foil the sagacity, of the most experienced. They only, who have spent some time in hospitals, are aware of the errors to which medical men, unless accomplished, and thereby ever prepared, are liable, when placed at the head of a crowded eleemosynary establisment. Between the successful medical officer and the blunderer, there is this striking difference:—By the former, every chief circumstance in respect to cases committed to his care, is anxiously reviewed, prior to his interfering, as if it really were a difficulty. To the latter, every thing in the abstract appears perfectly easy! Pupils ought to esteem themselves fortunate, who have studied under masters endowed with sufficient high-mindedness to admit their mistakes. Consult some professional journals, and the eye is met by records of brilliant success, only, obtained by this practice, that remedy, or by some particular operation. Upon testing these lauded measures, in the clinique, success, in too many cases, constitutes the exception, not the rule. To warn pupils against such illusory cases, must be included in the catalogue of the clinical professor's duties. By whom, with more propriety, can the putid conduct of those be branded, who deliberately propagate romance cases, to gratify a misdirected self-love, at the expense of deceiving the unsuspecting junior?

In the surgical, as in the medical clinique, affections will occasionally be presented, which, from the nature of things, it is impossible to amend. Such cases serve as the cue for valuable instruction to students. There are diseases which ought not to be interfered with. To tamper with them, is to make bad worse, independent of bringing the healing art into discredit with the vulgar, who judge of every thing by "the rule of thumb." The constitutional origin of many local diseases, and also the influence which diseases originally local if allowed to run on, ultimately exercise upon the constitution, ought ever to be borne in mind. Operations for *fistula ani*, in phthisical patients, are not followed by similar results, to those which attend operations judiciously had recourse to under other circumstances. So much for knowledge of the nature, rather than of the seats and names of diseases, affording data for medical, and, it may be added, successful rational interference.

In treating ulcers of long standing, intelligent practitioners act with circumspection. Such "solutions of continuity" are not, as formerly, made to "take on the healing action," through the medium of merely local means. Individuals affected with what were considered as trivial, because common, complaints, as cutaneous eruptions, ulcers, gout, and rheumatism, when *cured (?)* by local applications, were not infrequently either suddenly cut off, without apparent cause, by apoplexy, or were slowly exhausted by dropsies, peripneumonia notha, jaundice, or diarrhœa. The moving powers of the organism are unequivocally influenced by such parasitical actions, as counter-irritation, ulcers, gout, local depositions of organized matter, effusions, and periodical excretions. To induce or suppress any one of these (the secretions being consequently deranged by, or in turn deranging, the distribution and living affinities of the blood) establishes transient or permanent states of *general* pathology. In such circumstances the nature, seat, extent, and degree of danger, of induced *special* pathology (whether local or constitutional), will be determined by the nature and concurrence of the etiological influences applied to the constitution, or to parts of the economy, adapted for taking on pathological action.

By overlooking the state of the constitution, many accidents have followed the local suppression (*cure* it cannot be called), by topical applications, of periodical hemorrhage from the rectum. Instances are related by Wepfer, Hoffman, and others, in which the establishment of this flux was, from false inference, considered as healthful:—hysteria in plethoric females, hæmoptysis, asthma, hypochondriasis, being relieved on its appearance. Where one of two evils must be endured, the less, not the greater, should obviously be preferred. Although it is better that a patient be attacked with apoplexy of the rectum, so to speak, than with apoplexy of the brain, lungs, or of any other important organ, rational *constitutional* treatment might obviate or retard one or other of such forms of disease, in circumstances in which if neglected, and a local suppression induced, they would most probably be precipitated. Moreover, when professional interference is agreed upon, such means should be preferred as occasion or hazard the least danger to patients. In critical cases of surgery, decisions are more frequently erroneous, than in those involving the nicest problems in medicine, because the data upon which the former are grounded are not only embarrassing from their variety, but also from their conflicting suggestions. The chances of recovery and the natural tendency of the disease must be calculated. Life may be at stake, if the disease gain ground. Danger, as well as irremediable failure, may be incurred by trying to save the affected member. The stamina may be so impaired, that the shock of the operation, not to estimate the exhausting consequent demand upon the system during recovery, may prove fatal. On the other hand, in the most apparently unpromising circumstances, and where there is the greatest existing debility, but the constitution nevertheless unimpaired at bottom, by removing the limb the most certain success may crown the well-timed interference of the knifesman.

As an intellectual exercise of considerable practical importance, the attention of clinical pupils should be directed to what are styled cardinal symptoms. Definitions are much sought after by some. The greater number in medecine and surgery are as perplexing to students, as they are deceptive and worthless. By attempting periphrastic metaphysical definitions of what it is sufficient and always preferable to describe, (*ex. gr. inflammation*), existing confusion has been rendered only worse confounded. The most apparently simple diseases occasionally admit of being decomposed, if the expression be allowable, into different elements, of which some furnish valuable curative indications. To show the purport of these remarks, a single illustration will suffice. What is called irritation is a fraction, or an element in the series of those actions, of whose sum "inflammation" is the integral expression. Inflammatory actions are evidenced by sensations and symptoms, as pain, heat, redness, and swelling. On the invasion and throughout the course of many of the phlegmasiæ, *pain* so notably predominates over the other symptoms as to command attention. During inflammatory affections of the chest and of the abdomen, the persistence or return of pain seems to indicate a necessity for the repetition of bloodletting. Some, hurried away by exclusive notions, in such circumstances push the so-styled antiphlogistic regimen, forgetting that what is an antiphlogistic in one case, may act as a stimulant in another. The nature of maladies determines this difference. Hence bloodletting and starvation may, in one set of cases, destroy, and, in another, favor the germination of the series of actions constituting inflammation. In certain types of pneumonia, pleuritis, enteritis, and particularly of peritonitis, not a repetition of bloodletting, which may exhaust the system, but *opium*, with or without calomel, aborts the inflammatory process and checks effects which tend to induce a fatal termination setting in, perhaps, at another part of the system, apt to be wholly overlooked or unattended to by those whose attention is engrossed by transcendental speculations respecting the primary *seats* of diseases. By what class of diseases is the ultra seat-hunter, to borrow an expression from the vocabulary of whist—more frequently *finessed*, than by the acute inflammations, and in particular by those attacking the serous membranes, as peritonitis? A disposition in their states of pathology to undergo transitions, would appear to be a characteristic of the acute phlegmasiæ.

Commenting upon the treatment of obscure affections of the viscera, in which *pain* is a leading symptom, Sarconi, in his work on the diseases of Naples, uses an expression which illustrates the value of separately attending to the nature of the individual, as well as of the aggregate, symptoms of maladies. For practical purposes, the important problem to solve consists in distinguishing, "Whe-*pain* be the *mother*, or the *daughter*, of inflammation." In fact, as inflammation proceeds, pain, which at first has been a leading and fundamental symptom, may subside or assume another character, and may become merely an accessary or sequel, depending upon a gorging of the vessels; and, as inferred from the *juvantia* and *lædantia*, curable only by counter-irritation, with the conjoined internal exhibition, perhaps, of stimulants. Whereas, if pain seems to be the mother, not the daughter of inflammation, opium, premised, or not, by bloodletting as indicated by the symptoms, will be the sheet anchor, as was experienced by Sarconi during an epidemic at Naples.

The existence of irritation is indicated by pain. Irritation is a state of pathology short of inflammation. Bloodletting, which tends to subdue inflammatory action, tends to exacerbate or advance states of irritation into states of inflammation. The administration of an opiate after bloodletting in inflammations of important organs, such as of the chest and abdomen, frequently renders the farther abstraction of blood unnecessary. At the same time, the influence of the narcotic destroys or moderates pain, whose continuance exercises so decided an influence on the functional and organic disturbance of every affected organ.

In the surgical clinique the *rationale* of indications, and of the application of therapeutical means, must not be lost sight of. Just as rational physicians reason, so should rational surgeons. The only difference—distinction rather, for it is of a nominal, not of an essential character, is, in the nature of the premises; and these vary, in every individual disease and stage of disorder.

The art of Operations, which has been regarded as belonging exclusively to the province of surgery, must now be noticed. The remarks to be submitted, must be understood to apply only against the *abuses,* in thought, word, and deed, of a department of therapeutics, whose resources are so immense and important to mankind.

The popular error of considering SURGERY as consisting alone in operations, is not confined to the vulgar and the illiterate. Even by many of the profession, it is not regarded in a sufficiently comprehensive and enlightened spirit. The art of operations is a subordinate, though most important part of the healing art. It does not constitute true surgery. As a branch of therapeutics, may it not as appropriately be designated *operative* MEDICINE, as *operative* SURGERY?

To young minds, there would seem to be something very attractive and captivating in the bold and dashing manner in which the great operations in surgery are performed by metropolitan knivesmen. The general education and consequent efficiency of pupils in after life, are seriously marred by the effects arising from the exaggerated ideas of the value of operative medicine, with which very many of them become impressed. The lecture-rooms at the universities and schools of medicine are deserted, or are unseasonably quitted, and the order of systematic study disturbed, on the slightest rumor of there being—"an operation to-day." Students, who from certain habits of thinking and acting, never so much as, perhaps, perambulate the wards, during one out of the three regular visits, make a point of conveying themselves to the surgical amphitheatre, and, if possible, of there taking up a commanding position, in the front ranks, on FIELD DAYS. For some time, after seeing a calculus extracted and held up to admiration, within forty or fifty seconds after the patient has been bound or tied to the table, the neophyte's attention probably becomes so engrossed with the subject, that, to the neglect of his other studies, nothing is thought of by day, read during the evening, or dreamed of at night, but the anatomy, surgery, and the successive steps of the operation for lithotomy. Moderate reflection, it might be supposed, would satisfy even the youngest students, or, at least, the directors of their education, that the attracting operations for aneurysm, stone in the bladder, excision of the lower jaw, wholly or in part; or for the renewing or recreation of noses, &c. though in themselves, doubtless, most worthy of some share of his attention; yet, for once during an entire life of provincial practice, not two, out of three or four hundred surgeons, are called upon to perform such operations. For the minor operations, however, the services of the young practitioner are again and again required. These are undertaken with hesitation, and a fear of being foiled, because of their never having previously been attended to. How glaring the evils, then, of students, when at college and entered at the hospitals, attending chiefly or exclusively to the great operations! Many are to be met with, settled for practice, who are ignorant of the proper mode of applying the *tactus eruditus*, and of the period when the *areola* should show itself, after vaccinating an infant with effect, and of the accredited characteristic marks of the consequent genuine cicatrix. Not a few, may be familiar with the calculations of the occasional anomalous distributions of the arteries, and quite *au fait* in the successive steps of such capital operations as tying the subclavian and internal iliac arteries, cutting for stone, trepanning the skull, &c. who nevertheless are found literally ignorant of the relative and surgical anatomy of the blood-vessels and nerves, concerned in the minor operation of venæsection, at the bend of the arm—an operation the performance of which is so frequently required, and during which serious accidents may occur, either immediately, or in the course of some hours.

It is supposed by some, that the safety of patients, in the surgical clinique mainly depends upon chirurgical or manual interference. Is not the very fact of such an evil as an operation being necessary, whether for the cutting up, or off, of parts, a proof, to a certain extent, of the insufficiency of philosophical surgery? Comparatively fewer of the great operations are performed, now, than formerly. There will be still less necessity for the often discreditable alternative of the knife, when the attention of students is duly directed to the great improvements which, of late years, have been effected in the early treatment of surgical diseases. The glory of surgery, as a science, and as an art, should be considered to consist in saving and preserving, not in dismembering. Some pupils, nevertheless, persist in estimating the talent of a surgeon, and the value of a hospital, only by the gross number of patients mutilated in their presence, during the run of a season. When venturing to reform such erroneous notions, Mr. Abernethy would have failed, had he not stood upon a vantage-ground of popularity. His students for a time were rebelliously displeased, that out of so many patients in the hospital, there were so few operations! Playing the buffoon as a lecturer, affecting eccentricity in his consultation-room, and characterizing the physicians of his time as OLD WOMEN, did not content Mr. Abernethy, who was much esteemed by those who saw him in *cuerpo* behind the scenes. These affectations were resorted to, as means, only, to an end. It formed part of his ambition to convince his pupils, as he did, by *results*, that an irritable and seemingly radically bad member, instead of being, from the necessity of routine, cut off, would, in all probability, become a good and useful agent to the well-being of the general system, if "defects" and "loose screws" in the CONSTITUTION were but seasonably and thoroughly reformed.

Operations, however, are necessary evils. The intelligence of the age will gradually elevate to the dignity of a special department of science, what, too long, has been a mere art. The knife has not always been employed as a last resource only. Before operating, the modern surgeon reviews the conflicting probabilities, in favor of, or against, an encouraging prognosis as to the issue. He does not narrow the exercise of his intellect to planning the mere operation. The influence of general states of the atmosphere, or what, by the French, are styled MEDICAL CONSTITUTIONS, are carefully estimated. He knows that there are periods of the year, during which almost every capital operation miscarries, or proves fatal. Continental oculists are particularly averse to operate upon the eye, as for cataract, when catarrhal affections, fevers affecting the mucous membranes, measles, and other of the exanthematæ prevail. In Edinburgh, the minor operations are frequently followed by an attack of erysipelas, of a peculiar endemic type, requiring an order of treatment very different from that indicated by the nature of a similar endemic, occurring under collateral circumstances, in London or Paris.

Moreover, the existing condition of the chief organs of the economy should be ascertained, as exactly as is possible, before operating. Latent affections may be detected, which, if unattended to, would, in all probability, be advanced to a fatal termination, by the constitutional disturbance, more or less, inseparably consequent upon all great operations. Modern surgeons operate with hesitation upon those whose systems have been exhausted by previous indisposition, old age, or dissipation, and still more so, if any decided organic lesion is detected. Organic disease, in such cases, is rarely confined to a single viscus.

When an operation is deemed indispensable, the most expedient mode of carrying it into effect should be considered. Some operations, as experience proves, can be successfully performed only in one way. Others, again, must be modified, so as to suit the chief circumstances of individual cases. The opinions of able surgeons have long been made up, as to the comparative expediency of the different modes of cutting for stone in the bladder. Nevertheless, the suspected existence of inflammation, or a proneness to its supervening, at the neck of the bladder, the physical nature and bulk of the stone, the age of the patient, the state of the kidnies, and of the prostate gland,—may each furnish so many data, which we may propose for modifying, or which we may assign as grounds for prefering, one or other of the ordinary modes of operating. When patients affected with cataract present themselves for operation, in addition to determining whether the growth be *congenital*, or *capsular*, or *soft*, the general condition of the tunics of the eye, and of its appendages, ought to be examined with great care, especially before deciding whether the cataract should be removed by extraction, or by breaking up its adhesions and its texture; and also whether the needle or the knife should be the instrument employed.

When patients are in the hands of even the most dexterous surgeons, unforseen difficulties occasionally arise. Whatever, therefore, be the operation agreed upon, available resources should be provided before its performance, calculated to meet the occurrence of any extraordinary exigencies.

Whatever is done well enough, is done quick enough. Operative surgery constitutes no exception to the roman adage, *sat sito, si sit bene.* Most erroneous ideas are entertained by others, than merely the youngest students, that the more rapidly tumours are excavated, condemned legs and arms severed, diseased mammæ dug out, and the affected glands torn away, the better for the patient, and the cleverer the surgeon! No mistaken opinion can probably be more banefully injurious in its influences upon the constitutions of unhappy sufferers. Assuredly no criterion of the abilities of a surgeon is more fallacious and less complimentary, than the precipitate celerity with which the various steps of a chirurgical dismemberment are begun and ended by him. What may be termed *foudroyantes* operations, are worthier of the charlatan and of the juggler, than of the philosophical and humane surgeon.

Opinion would seem, among other things, to dictate the exercise of the utmost possible degree of rapidity, in performing operations in the surgical amphitheatre. It would be as idle to characterize such a state of things, as it would be difficult to say how far the rapidity of the manipulations of knivesmen are influenced by the conduct, and consequent opinion, of lookers-on, who take out their watches as regularly as the operator takes up his knife. Cutting, literally, against time, and thereby endangering the lives of the subjects, inside and out, by an emulous Jehu, sparing neither wind nor limb in seeking to outdrive his rival, retained upon an opposition stage-coach establishment, may be so far excusable, from the probable benefits resulting from the temporary excitement, and the improvement of the breed of horses, in this agricultural and macadamized country. But, if the knivesmen of two rival hospital-schools allow themselves to be goaded by such feelings, and cut as literally against time, to the hazard of the recovery, and to the certain injury, whether appreciable or not, of the healths and constitutions of *their* subjects,—such conduct, by all who take the ground of common-sense, humanity, or philosophy, will be unhesitatingly characterized as worse than *barber*ism, or, at least, that it is not SURGERY. The experience of the unprejudiced portion of the profession, may be confidently appealed to, in support of the plain statement of a melancholy truth, that the possession of surgical talent has been tested, as racily, as the speed of an anxious quadruped between the distance and winning-posts, by—the progress of the moment-hand of a time-piece.

The gravest accidents may be occasioned by operations. Every manual interference worthy of being classed with "operations," whether performed very quickly, or with due regard to a judicious medium despatch, must be more or less painful to the patient. From inattention to this TRUISM, it may indeed be said, that the recovery of some sufferers from the immediate effects of the very operation itself, is owing more to chance than to true surgery,—if good and true surgery, like rational medicine, be a calculation or science of probabilities.[1] All severe operations produce complete or comparatively pronounced phenomena, indicative of that state of the system known by the epiteths of SHOCK, "cold stun," *collapse*, followed or not by healthful or morbid Reaction. Judging by their actions, few knivesmen have sufficiently reflected upon the occurrence of shock, and its consequences, as induced by operations. The education of the operating surgeon should be extensive. In its range it cannot be too liberal and philosophical. Very many operators are far from being sufficiently familiar with the laws of the system in health and disease, and with the influence of the mind upon the body.

However enviable and rare manual dexterity is, as an exercised gift, the enlightened operator, aware of the leading part which pain enacts in the tragedy of human suffering, will never sanction amputations, or any of the capital operations, to be hurried through with a rapidity rivaling that of decapitation by the guillotine. The influence of pain, and the analysis of its effects, before and after, and above all, while operating, should severally engage attention. It may be affirmed, that the endurance of intense pain, is the most prolific cause of the injurious or fatal sequelæ, attendant on operations.

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[1] [" Science of probabilities," " calculation of probabilities," and similar forms of expression, have occurred oftener than once in this volume. For the difference between chance and probability, see article upon M. Le COMTE LAPLACE'S *Essai Philosophique sur les Probabilités*, in the Edinburgh Critical Review, vol. XXIII. See also the section ON PROBABILITY, in the 2d vol. of *Hume's Essays*; and two numbers on THE SCIENCE OF PROBABILITY, in the *Library of Useful Knowledge*. The student will do well to peruse the concluding portion of Dr. Abercrombie's work on the Intellectual Powers, *passim*; and the remarks on PROBABILITY, in Sir J. W. F. Herschel's *Discourse on Natural Philosophy*.]

In all severe states of pathology, to mitigate PAIN, if present, constitutes one of the chiefest indications. To the physician, the management of this much-neglected symptom is as interesting as it is important to the patient. In that form of disease, for instance, known as *Morbus Coxarius,* whose seat and characteristic actions are peculiar to the hip joint,[1] the intensity of the pain gradually increases, as the disease extends from the osseous to the adjoining tissues, either through the bone inwards, or, as usually happens, gradually to without, implicating the apparatus of the entire joint. Students, by actual observation, may satisfy themselves how unequivocally the progress of this disease, and the degree of constitutional disturbance, are influenced by the harassing and exhausting effects of this one symptom under notice. To suppress or moderate the morbid actions in the affected portion of the organization, which occasion the mental sensation of pain, is a rational, as it also is an empirical, indication. In hopeless cases it is had recourse to, with a view to palliate and smooth the way to the grave, and to enable the thread of life to be spun out as long as possible.

Experienced hospital surgeons have all-sufficient reasons for anxiety, lest patients, harassed by previous suffering, should die on the operating table. Pain, of itself, suddenly exalted to an exquisite pitch, has caused instant death. The SHOCK of every operation of magnitude, pervadingly affects, or prostrates, the nervous energy. Petit wrote a fine discourse upon pain. A better subject, for an inaugural theme, or, as an exercise during the summer recess, could scarcely be fixed upon by the student, than the Philosophy of PAIN, in relation to Physiology, Pathology, and Therapeutics. Illustrations of its effects, upon mind and body, are plentifully scattered through many excellent works in the English language, which, from their popularity, and consequent circulation, are accessible to all, to whom professional reading is a pleasure.[1]

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[1] [Most probably, because of the slowness with which the ossific union in the cotyloid cavity of the three separate bones advances, and because of the low evolutionary vital action continuing up to the adult period of life,—the accession of pathological action is greatly favored, and easily developed, on the application of some of the presumed etiological agents. The *primary* seat of Morbus Coxarius has hitherto, unavoidably, been at best but guessed at, by the ablest british pathologists, and also by the most recent continental essayists, as MM. Dzondi and Frick. The tendency of probabilities, however, and the conversion of symptoms into signs, greatly favor the opinion entertained by many in this country, that the morbid action originates in the *osseous* tissue.]

Among the general effects of pain, may be enumerated, wakefulness, inquietude, amounting to incessant restlessness, and, lastly, fever. Convulsions are frequently occasioned by pain, especially in those whose nervous systems are susceptible of being easily irritated, as infants, hysterical women, and hypochondriacs. All the secretions and excretions are suspended or modified by pain, among the effects of which, loss of strength, and gangrene, must also be included. When severe, its consequences are the less dangerous, the less its acme has been precipitated. Some constitutions, through the force of habit, acquire *tolerance* under pain, particularly if gradually, and by intermissions, subsiding and returning. It is the abrupt accession and intensity of the lancinating pain, by which patients of the cancerous diathesis are martyred, which cause comparatively so much anguish and constitutional disturbance. Conceive those "pains," which woman is fiated to suffer during childbirth, augmenting, not progressively, but all of a sudden! Would not the intensity of the shock annihilate the most vigorous female system, which, within the hour, had been harmoniously acting in its latitude of health? How worse than irrational, then, must *foudroyante* operations be, when performed upon patients, the vital renitency of whose systems, undermined by long previous illness, would possibly abruptly give way during the operation, from the loss of even six ounces of blood!

The danger to be apprehended from suddenly intensed pain, during display-operations, and the effects of the consequent shock, may, perhaps, by some, be considered as here exaggerated at the least, if not as utterly visionary. The decision of the great question, canvassed by the most intelligent medical officers in the Navy and Army,—namely, whether, the severely wounded should be operated upon before, or not until after, reaction had set in,—might probably be remotely dragged in, and appealed to, in support of such doubt or objection.

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[1] [Among several others, the publications of Sir B. Brodie, of Mr. Travers, and of Dr. A. T. Thomson of London, may be particularized.]

When soldiers have been struck down by a cannon shot, or when the contents of a seaman's casque have been all but tapped by a splinter, in the heat of action, such sufferers are brought to the hospital, or cockpit, in a state in which the nervous energy and the powers of the circulation are prostrated. Should this prostration not be very intense, and independent of necessity owning no law, such patients may be operated upon, without waiting for a reaction. The decision, upon the whole, seems, as a general rule, to be highly rational. The principle which it involves suggests ideas which naturally take the following as, perhaps, their correct form of expression:—To allow previously vigorous systems, after shock from injury, to experience reaction, and not *till then* to operate, would be to virtually submit them to *two* SHOCKS, or at least to *two* REACTIONS, instead of only to *one*.

There is, evidently, a wide difference between the cases of men wounded in the public service—take the case of a regularly fed, regularly grogged, man-of-war's-man—suddenly requiring and undergoing an operation, and that of a half-starved pauper, or a homeless, care-worn stranger, in a large city. The former has entered the service as a picked man, and has probably been in the enjoyment of rude health, up to the moment of receiving the injury. From the force of these very circumstances, he is, perhaps, in the most favorable condition for undergoing an operation, at a time when his over-energetic powers of life are *temporarily* reduced. On the other hand, how dissimilarly circumstanced is the emaciated and heart-sunk subject of the city! *His* health has been in a state of disorder for years.

His constitution has been preyed upon and broken up, by toil, and by the wear and tear of debauchery, poverty, exposure, and, above all, by the worrying agency of pain and mental distress. The nature, as well as the circumstances of the respective cases, are totally dissimilar. In the former, the immediate and remote dangers of an operation, if even performed in the *foudroyant* style, by Jupiter-knivesmen, may be *escaped.* In the latter, it must be matter of surprise if few sufferers expire upon the table, altogether overlooking the appreciable or undetected consequences of DISPLAY-OPERATIONS, performed, against time, and with such fluency as to merit the ephemeral applause of the mixed multitude of lookers-on, assembled in the amphitheatre.

The ancients were aware of the injurious effects of pain—an inseparable attendant, to a certain extent, upon operations. Aretæus ascribed the deaths of several to the immediate and remote consequences of intense pain. To obviate pain was a leading indication with Galen. He directed sedatives to be applied to parts, previously to being cut. Monro "primus" of Edinburgh, proposed, that the leash of nerves, or great nerve, supplying parts condemned to the knife, should be compressed at their origin. Great prophylactic "virtues" were attributed by Hufeland, to the Hyoscyamus albus, administered to children and to those of irritable temperaments, prior to operating.

Opium although of great use afterward, should rarely be exhibited with a prophylactic view. Delpech, however, (of whose zeal, traits were sketched at p. 36,) aware of the philosophy of pain, undertook operations, in circumstances so every way unpromising, owing to the constitutional exhaustion of the patients, that able contemporaries had shrunk from incurring the responsibility of the issue. Delpech's all but miraculous successes frequently startled his brethren. His practice in certain cases, was, to blunt the sensation of intense pain, by a judicious use of opiates.

Syncope. Neophytes, occasionally, are surprised to see the surgeon discontinue an operation, on the occurrence and during the continuance of syncope. It may be natural for instinctive but not for disciplined common-sense, to say: "Why does he not proceed! The operation may be got over, without the poor soul feeling it so acutely!" This wonder depends upon unacquaintance with the philosophy of this state of functional pathology, in relation to operative medicine. Were the steps of the operation to be prosecuted while symptoms of threatened, or declared *fainting* continued, the interruption to the vital dynamics of, what by a figure of speech is termed, the *primum mobile* of circulation—what at first is, only a temporary tendency to death, beginning at the heart—would speedily be extended *throughout* the arterial system, and by bringing the moving powers of the arteries, and ultimately the play of the all-important vital affinities going on in the CAPILLARIES, to a stand-still, a partial tendency to death, might, and most probably would, become death complete.

From the force whether of empirical or rational suggestions, the surgeon, in cases of fainting, instantly ceases farther sawing with the knife, and applies himself to favoring the restoration of the heart's action, as by sprinkling cold water upon the face and hands, and above all, as, in the management of syncope, the grand point is to promote a full play of the lungs—by allowing the sufferer, literally, a breathing time.

Intelligent pupils will guard against their attention being engrossed by the mere performance of the operations which they witness. The dressing and after-treatment, the regimen, hygiene, &c., are often most improperly slurred over. Unfortunately there are operators with considerable pretentions to surgery, whose ideas—as interpreted from their actions, and as signified by the example shown by them to students—appear to be confined to the BOARD, catlin, tenaculum, stay-maker's silk, saw, sponges, wine and water, coolness, and THE DISPLAY. Many practitioners, even in large cities, seldom venture to apply a bandage in the presence of advanced students. The surgeon of every village in France can *apply* bandages. Appropriate bandaging very frequently constitutes one of the most efficient of curative means. Without suitable dressings, the most dexterously performed operation may miserably miscarry. Good after-treatment frequently obviates the occurrence of sugar-loaf stumps, and counteracts other effects of indifferent surgery. The most judicious practical men in the unrivalled navy and army of this country, to a man, attest the influence and importance of close attention to after-management, especially as regards bandaging. With the excellent descriptive letter-press, plates, and diagrams, in the respective monographs of Messrs. Chapman and Cutler, british students can no longer, justly, complain, of the want of indigenous guides and text-books, to economize their time and direct their application to a chief and, in this country, strangely neglected department of TRUE SURGERY.

Traumatic or Nervous Delirium. As an occasional attendant upon severe operations and wounds, the late baron Dupuytren drew the attention of surgeons to a peculiar kind of nervous delirium. In his Leçons Orales, the baron designates it *traumatic* delirium. It arises apparently unconnected with any appreciable cerebral alteration. The tranquillity of the circulation, and the absence of every febrile symptom, amid exalted disturbance and perversion of the senses, are among its remarkable features.

You see, says the baron, a furious patient "beside himself." Drops of sweat inundate his face. His eyes burn. His yells are re-echoed back from the walls of the apartment. He may be supposed to be a prey to violent phrenitis. Approach him: his pulse is calm! regular!! and the state of his skin banishes even the suspicion of inflammation existing!!! If prolonged beyond the fifth or sixth day, this delirium rarely ends in recovery. The instances which came under this eminent surgeon's care, occurred chiefly in cases of suicidal attempts, cut-throat, affairs of honor and of love, moral distress, self-mutilation of the genitals, &c.

The management of this interesting malady, forcibly and practically illustrates the importance of observing the methods of analysis and exclusion.[1] Here also, be it observed, not the seat, but the nature of the malady decides the curative indication. Empirical and rational treatment were respectively tried. Bloodletting was pushed to syncope, and with what effect, it is unnecessary, to use a legal phrase, to condescend upon. Revulsives, all kinds of calmatives, with other means besides, proved unavailing. The successful treatment consisted in small doses of laudanum repeated so frequently, as to keep up a gradual and gentle state of stimulation. Lavements containing laudanum were particularly beneficial.[2]

Secondary Hemorrhage, as well as pain and shock, from its immediate and remote effects, is exceedingly dangerous. Let the student make himself familiar, with the select medical literature of practical men, upon this sequel of operations. Its occurrence may or may not depend upon a hasty or imperfect application of the ligatures. Its etiology is various. For example, inattention to placing the stump, and the patient too, in a favorable posture after the operation; tampering with the healing process by officious "fiddlefaddle" *dressings;* want of cleanliness; the continuance of a temperature, local or general, which creates uncomfortable feelings in the part; inappropriate diet; the mistaken kindness of friends; idle gossiping; proxy messages, and letters, &c. Any one of these, may provoke secondary hemorrhage, to the interruption of the cure, and to the injury of the patient's constitution,—the oozing away of blood inducing an irritative state of exhaustion. The surgeon who actively wishes well to his patient, and is prudently concerned for his professional reputation, will obviate with decision, all those probable sources of injurious annoyance and irritation. Any untoward occurrence *after* an operation, favors unjust and ungenerous insinuations being encouraged and received in certain quarters. Able and worthy *professional* men, have always enemies, of which none are better aware, than observing and thoughtful students.

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[1] See pages 73 and 77, passim.

[[2] For details, those acquainted with the french language, as every medical student ought to make a point of becoming—are referred to the first vol. of DUPUYTREN's *Leçons Orales*. During the last past three years, copious and ably executed analytical notices of various sections of the work referred to, have been drawn up, by the artists of the british medical press.]

Although hemorrhage may come on after an operation, it does not logically follow from such a premiss, that it is, therefore, traumatic: *Post hoc, non ergo* propter *hoc.* Some hemorrhages are active, and require direct antiphlogistics. Others are of a very different nature, in which tonics, with nutritious, and even stimulating, diet, are necessary. States of system in which hemorrhage, and low latent inflammations are prone to occur, are not infrequently declared, after operations, especially after lithotomy in the aged. It would be absurd to say, that wine, quinine, or full diet, should be withheld, from fears encouraged by the *names* and *seats* of affections. Even in some old men, it is questionable how far the low chronic inflammation at the neck of the bladder, almost uniformly attended with rigor and constitutional typhoid depression, may not be prevented, or retarded, just as consecutive or attendant lesions and tendencies to death, in some fevers, seem to be prevented or retarded by wine and stimulants, opportunely administered, and whose effects, as a matter of course, are to be as anxiously watched, (for indications in the way of the *juvantia* and *lædantia)* as those consequent upon blood-letting, or a blister.

A Montpellier surgeon cut a man for stone. A few days afterward hemorrhage appeared. The usual mechanical means were employed to check it. The bleeding re-appeared several times, without apparent cause. Routine treatment and attention to the seat of the oozing, proved utterly inefficacious. Mejan thought he observed something like *periodicity* in the mode of the returns of the hemorrhage. He educed and promptly followed up the suggested indication. Guided by the interpreted INTERMITTENT *nature* of the disease, a preparation of bark was prescribed. The oozing, which had been gradually sinking the patient, ceased. Convalescence set in, and settled into complete recovery.

The Vulnerary Fever—an appropriate title, of old authors—is ushered in within twelve, twenty-four, or forty-eight hours after operations of magnitude. Like every fever, it is a reaction; and, like every reaction, its tendency may be healthful or morbid. If it set in with force, "union by the first intention" is interfered with. If it be moderate, direct union of the parts put in apposition, or the processes of healthy granulation and contraction, are expedited.

When this fever sets in with rapidity, during its stage of irritation, before it shows appreciable types of decided inflammatory fever, the slightest additional agents of constitutional disturbance, suffice to provoke what the French term a fluxionary movement *(un mouvement fluxionnaire)* on some important organ, running on, it may be, from simple irritation to inflammation, effusion, and death. Should it, nevertheless, not be so severe, the experience of observing hospital officers, shows, that patients who have been attacked by it, are afterward unusually susceptible to the impressions of morbific agents, which the unimpaired stamina enabled them to previously resist. Farther. If struck with intermittent fever, while passing through fenny districts, they suffer inordinately from *ague cakes,* and if attacked with remittents, they are preyed upon by a crop of visceral inflammations.

Interesting volumes might be written, grounded on the results of hospital experience, illustrative of the complications and effects, of severe wounds, whether produced accidentally or by design. Within the limits of a sketch like this, it is not possible to do more than touch upon, even the most prominent of them. But a paragraph or two, *à la feuille volante,* must be devoted to effusions, or internal depots, were there no other inducement than to provoke the student's attention to what he will find, is, so every way to his advantage to follow out minutely in detail.

Cadaveric inspections of those subjected to operations, as has been known for centuries, frequently reveal internal deposits and abscesses, less or more extensive, which had evidently invaded the principal viscera, as the lungs, liver, spleen, kidney, peritoneum, &c. A multitude of observations upon the nature of such local and masked affections, has recently been made by foreign and british authors. Among others, chiefly by Velpeau, Reynaud, and Legallois, Dance, Dupuytren, Tonnelé, Roche and Sanson; by Dr. Alison; and also by Mr. Liston, Mr. Syme and others, in their surgical works, papers, and reports.

Observations conducted with great pains by the French, and the deductions of british writers, support the belief, that the nature and actions of deposits, effusions, abscesses, &c. deeply seated in the parenchymatous tissues, are, apparently in the closest manner, allied to the nature and action of phlebitis, induced by the importation of foreign matter endosmosed by the veins, and tided through the system with the currents of the vital fluids. Various observers are, meanwhile, engaged in tracing the different modes in which such affections, particularly the collections or deposits of purulent matter, are developed, and also, if possible, in determining what seem to be the appropriate means of their prevention and treatment.

Preparing patients for operations requires great discernment. To make a matter of routine of purging, sweating, and bleeding patients about to be operated upon, as, at one time, was generally done, is worse than officiousness. On the other hand, to take no precaution whatever is reprehensible remissness. Successful ophthalmogists attend to the constitution of patients, on whose eyes they propose to use any cutting or puncturing instrument. Hygienic and prophylactic treatment are very efficacious. It is infinitely better, as Macquart remarks, to protect a house from fire, than to content one's self with the being able to bring ever so many buckets of water, to suffocate the flames *after* they have burst forth.

From the tenor of what has been submitted in the preceding pages, the reflecting student will have perceived, that when operations are unavoidably necessary, the safety of patients, and the success of such responsible enterprizes by no means so much depend upon the mere dexterity with which they are executed, as upon the judicious selection of favorable circumstances in support of them,—particularly the plan most eligible in the individual case, upon the sagacity with which after-treatment is followed up, and upon the degree of care taken in watching, preventing and checking injurious primary, or consecutive, states of pathology, with the least possible delay. To conclude: a few remarks, of a summary and mixed nature, may advantageously be made on the qualities, which it is desirable should be possessed by the professor, who is charged with the instruction of pupils in bedside medicine and surgery.

As observation is the basis of clinical studies, and, as the senses are the instruments of observation, the professor should, for obvious reasons, be possessed of the physical qualities which are indispensable for directing the education of pupils in this department of the curriculum.

In Book VIII. of Celsus, the qualifications of a hospital surgeon and operator, are admirably enumerated. But, cultivated intellectual powers, and an extensive acquaintance with the literature of his profession, are also required, in addition to manual dexterity and sound senses. There is not a single branch of human knowledge with which an acquaintance will not be found, directly and indirectly, serviceable, in illustrating and explaining the phenomena presented in the clinique. The professor who is ignorant of the general and collateral sciences, incurs the hazard of being frequently interrupted, in his course of lectures. If his knowledge be what is incorrectly styled "wholly confined to his *profession*"—if it is not discursive,—if he be unacquainted with polite literature, and not *generally* well informed, from the confined range of his ideas and consequent inability to take a comprehensive survey of the relations of what specially impress his senses, he will find, that he will speedily *speak,* as he also will "*write,* himself out."

In addition to possessing genius, (OPERATOR *nascitur, non fit)* the operator should be industrious, and ought to cultivate habits of presence of mind—decision of character —imperturbable *sang-froid*—patience—a mild and winning address—and that style of the OUTER MAN, which subdues, consoles, encourages, or inspires with confidence, just as may be expedient. If the operator have not the virtue of sensibility, he should, as Hamlet suggests, at least assume it. The proofs of unmeretricious sensibility, do not consist in whining over the pains and distresses of an afflicted sufferer, but in benevolently solacing them. Greater attention should be paid to the patient after, than was tendered to him before the operation; and during its performance, possibly the less the operator says, the better: he should think much and say little.

Being communicative, and *fair, and above board,* with the students, are qualifications not less important to the clinical professor. By collecting the clinists around him, and encouraging them to freely state their difficulties, those scientific relations between professor and pupil which flatteringly cheer the latter, honor the former, and assure the success of the teacher and the taught, are encouraged. The freest mutual confidence should subsist. It is vain for any medical officer, to hope to conceal his mistake from a whole body of scrutinizing observers. Nothing, as experience has proved, more certainly and naturally commands the respectful esteem of informed students, than that professionally confiding generosity of character, which is evidenced by a candid admission of having been deceived, or in error. The clinical, more perhaps than any other instructor, should possess the art of accurately expressing his ideas. Too much attention cannot be paid to LOGIC, which, in its only true acceptation, means the grammar of expression. Practitioners are to be met with, who, though experienced and otherwise possessed of admirable tact, are, nevertheless, embarrassed, and hesitate at every sentence, when attempting to communicate their ideas to others. It is only by practice and attention to ideology, that the succession of thought can be extemporaneously regulated, and, that ideas and the memory of association, can be made to take a correct form of expression at a first effort. The "faculty" of being able *to correctly think aloud, when upon one's legs,* is as much an acquirement—a habit—and art, as an endowment.

The various conditions whose assemblage appears necessary to constitute a good clinique, are copiously treated of by M. Ratier.[1] Some of the elements belong personally to the professor. There are others, which must be taken, not as he would wish, but as he finds them. The locality and accommodation should be convenient and eligible. The wards should be spacious, well-aired and lighted, and should admit of a mean temperature being kept up; and in addition, should be removed from the nuisance of a city thoroughfare, noises, and noxious emanations. A sufficient number of patients, and the faculty of so selecting from them as to continually have examples of different species of diseases under the observation of pupils, are, of course, among the essentials required. The pharmaceutical department should be well looked after, the medicines duly prepared, and the prescriptions carefully compounded, and means should be taken to be certain of their having been duly administered as directed, or reported, if otherwise. The BILL OF FARE should be simple, *plainly cooked,* abundant, and healthful. It should be distributed to the sick exactly as enjoined. No *clever* underling in "the management" should be permitted to modify, or to "improve upon," the directions of the honorary or stipendiary medical officer. The object is, to leave nothing unattended to towards promoting the acquisition of, not what the public, but—what the clinical professor understands by TRUE EXPERIENCE. There should be an organization of intelligent and zealous individuals, each sufficiently instructed for discharging his particular duty, and for efficiently seconding the physician and surgeon, in the different functions which they are required either to discharge or to superintend.

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[1] Coup-D'oeil *sur les cliniques Médicales de la Faculté de Médicine, et des Hôpitaux civils, de Paris.* 8vo. pp. 159. A work previously referred to.

In the hands of an able professor, these resources tend to render his instruction complete and profitable to pupils; but they will be unavailing and profitless, if the chief of the clinique is not possessed of numerous qualities, the majority of which it is rare to find united. A distinguished practitioner may make but an indifferent professor. In addition to the qualities of an able private practitioner, which the clinical instructor should possess in a high degree, others are specially necessary, on account of his position. The responsibility of a private practitioner is as dust in the balance, compared to that of the clinical professor. Pupils drafted off from the clinique, imbibe, act upon, and multiply the salutary or deleterious precepts inculcated upon them. The clinical professor, consequently, should conduct himself, as if every one of his actions and communicated thoughts, were precepts and examples. Affability, decency, dignity, sound judgment capable of resisting the misleading influence of will-o'-the-wisp hypotheses; prudence, sagacity, shrewd reserve, varied instruction, experience of men—manners—and books, simple and ready elocution, method and precision in the exposition of his ideas, lively and sincere desire to be useful;—such are the qualities which have been seen, less or more, combined in those, who have distinguished themselves as clinical instructors. Some, endowed with sagacity in discerning diseases, abuse this advantage by neglecting the means of investigation, and, instead of looking for data and facts which impress their senses, seem to practice a kind of incessant divination. Others attend solely to some particular theory, or mode of practice, forgetting that the object of the clinique and of their position, is, to render pupils able to properly treat *all* diseases which come under their notice as general practitioners. A third order of men, zealous and anxious to be useful, but destitute of philosophical and comprehensive views, attach vast importance to a minute and barren compilation of wordy observations, and get either perplexed or fairly break down amidst details. A fourth order of misdirected zeal, is exemplified in the conduct of those, who, estimable in other respects, experiment upon medicines and modes of treatment, but from want of judgment in combining a variety of therapeutical agents render the just appreciation of the effects of any single medicine, perfectly impossible.

The professor should impress upon pupils, that to *doubt* is a rule of the most general and useful application in medicine; and that nothing should ever be done from mere hypothesis, or on the strength of a simple opinion. Elementary notions ought to be enforced and dwelt upon, for there are always pupils who enter the clinique for the first time. Making *special* researches forms no proper part of the duty of professors to the clinique. There is a time and a place for every thing. The duties of those charged with the responsible mission of instruction, are of a more exalted and general order.

The following is a sketch of the method pursued in his clinique, by M. Chomel, one of the most steadily followed, as, at the same time, he is one of the most judicious instructors in Paris. At his visit (early in the morning) he methodically examines either recently admitted patients, or those who have been for several days in the wards. A scrupulous exactness is observed by him towards them all. He directs notice to the morbid phenomena perceptible to the senses, and far from seeking to amaze the pupils by a pretended sagacity, he accustoms them to appreciate the exterior habit, the attitude, and the physiognomy of the sick; to recognize the states of the muscular force, and of the intellectual and sensorial functions; to explore the digestive organs; and, by means of percussion, and of mediate and immediate auscultation, to ascertain the various lesions of the heart and lungs which may exist. He shows the indications which the inspection of the excretions may furnish, and others which may be afforded by the appreciation of the animal heat, and the state of the generative functions. After delivering his diagnosis, he presents the indications upon which the plan of treatment is to be grounded. The pupils are next advised how to satisfy themselves of the effects of the remedies prescribed, whether the medicines have been formerly used, or are recently introduced into practice. They are cautioned against the common errors to which imperfectly educated practitioners are liable, namely, attributing all the phenomena which occur *after* the administration of drugs, as, *ipso facto*, effected by them—altogether overlooking, perhaps, the natural progress of the malady, and the influence of other agents, which are capable of modifying the course and manifestations of the disease.[1]

The visit is succeeded by a lecture, the materials of which have been conjointly collected by the pupils, and by the professor. Remarks are made upon cases recently admitted into the hospital, and upon those which are on the eve of quitting, or who have just left it. Those which have proved fatal, and in which there is to be a dissection, are next considered. Lastly, chronic diseases, or acute affections, which have been for some time in progress, engage attention according to the relative importance which their features present. During these conferences, details are more freely gone into, than was admissible at the bedside. The diagnosis is established and discussed with the professor's opinion of the progress, duration, and probable issue of the malady. The bases of the treatment, and the motives actuating the preference of a given method, are unfolded; also, the effects obtained, and those anticipated. Occasionally, there are practical discussions upon medicines, their best preparations, and the most generally successful mode of their administration. Then follow practical deductions from a review of the entire symptomatology, progress, and mode of fatal termination.

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[1] [The importance of testing the questionable reputed effects of drugs, in the wards, is not sufficiently enforced by the example of clinical professors. Dr. Conolly observes, that it is to be wished that "many or most of the articles in the Materia Medica, were submitted to new and careful clinical experiments. No part of medicine is in more need of complete reform, than that which relates to the actual effect of medicines daily and hourly employed." See article ALTERATIVES, p. 56, *Cyclopedia of Practical Medicine.*]

Cadaveric inspections are conducted by Chomel with exemplary care. First of all, the organs to which the phenomena noted during life were referred, are scrutinized. The state of *all* the other organs are then successively inspected. The lesioned parts are carefully preserved, and serve as texts for a separate lecture, to be delivered at a specified hour next day. The parts, when re-submitted to the observation of his class, are so displayed as, (through the medium of duly attended to and ineffaceable impressions upon the senses,) to present precise ideas of the degree and kind of any appreciable morbid alteration. It is desirable that professor Chomel's method should be generally followed. Cadaveric inspections are performed, too frequently, in such a hasty manner and with such instruments, that parts of interest to be examined, lose all trustworthy appearance when hashed, squeezed, or disfigured. Chomel makes a point of describing with scrupulous accuracy, *just as they* ARE, any alterations, as soon as they are detected. Descriptions which are read in presence of those who have actually witnessed the dissections of the collateral preparations produced, are compared with the recent morbid structures under tangible inspection.

There seems no occasion to expatiate upon the superiority of observations, collected in this methodic manner. Methods are indispensable in the sciences. The great Descartes observed to his pupils, that if he enjoyed any advantage over his fellows, he owed every thing to the METHOD which he pursued.

All of the Parisian clinical professors are sensible of the advantages derivable from the practical instruction of pupils. The beds are parcelled out among advanced students, charged to collect the observations of patients, in the order in which they are occupied. Pupils are trained in examining the applicants for relief, as entered upon the books, and shown how to correctly practice the different modes of medical exploration applicable to the abdomen and chest. They are required to establish the diagnosis, to indicate the prognosis, to fix the curative indications, and to prescribe the formulæ for the treatment. *All this is transacted in presence of the professor*, by whom, if need be, threatened errors are instantly checked, or mistakes, rectified.

Consultatations upon the most interesting cases are conducted *among the students*. One pupil represents the ordinary physician, or "family doctor." With due regard to professional courtesy and etiquette, he is requested to state the history of his patient's case, and to explain to his fellow-student, who represents the "farther advice," or consulting-physician, supposed to be called in, the treatment employed, and the results obtained, up to the latest visit. Both then proceed, together, to examine the patient. They withdraw from the sick-bed, and in the statement and discussion which follow, each expresses his views. The opinion and mode of treatment, and the explanation for the ears of the friends, as finally agreed upon, after thus laying their heads together in professional amity, constitute the CONSULTATION.

But this is not all. At some other opportunity, a consultation-letter, or narrative of a case which has given rise, let us suppose, to a difference of opinion between parties in attendance, is handed to another advanced pupil, as if addressed to him by a patient residing at a distant part of the country. The student is required to read it over carefully, to reflect for a little, and then to seize pen, ink, and paper, and despatch his reply in regular business style, by return of post,—unless there is a request (suitably enforced by extra ballast) to defer committing his opinion to writing, until after having given the case his "mature consideration." The object of these admirable exercises, which were instituted by Corvisart, and practised with enthusiasm under his revered superintendence,—is, to train and habituate young practitioners to the various duties which they may be called upon to fulfil, when thrown wholly upon their own resources, and obliged to bring their minds to bear upon every position and chance, that is when fairly set down at the BACK*GAMMON*-BOARD of private practice.

The leading features of M. Cayol's methods of clinical instruction, and those of MM. Bouillaud, Andral, and the lately deceased, much lamented, Dance, would next have been outlined, had not the length to which this part has already extended, rendered it expedient to proceed to the following cursory exposition, first, of the MEDICAL CREEDS of *Materialism,* and *Vitalism,* and then of the confession of mixed medical faith, here designated, *Vegetable, Brute,* and *Human* ORGANIZATIONISM.

To these sections will be added, Professor Brichteau's philosophical discourse ON THE ART OF OBSERVING AND, CONDUCTING OBSERVATIONS, IN MEDICINE.

PART II.

EXPOSITION OF THE MEDICAL CREEDS
OF
MATERIALISM AND VITALISM.
AND OF
VEGETABLE BRUTE, AND HUMAN ORGANIZATIONISM.

Just judgment cannot be pronounced by the aid of any book, but should proceed directly from the mind, as though no book existed. Reason should not be held prisoner by words.——*Luther.*

With the learned, as with the vulgar, names have great weight: the wise use a writ of inquiry into their legitimacy, when they are advanced as authorities.—— *Zimmerman.*

Locke somewhere cautions men of science against "the cheat of words." The expression is forcible, and deserves commemoration as a standing caution in medicine: for, in what other science is the cheat of words,—the cheat of thought,—a source of greater, or of more interminable fallacies?

How loudly has not the inane outcry, conveniently raised by ignoramuses, against the theory and general principles of medicine, been joined in, by shallow, unreflecting, word-led declaimers! It can never be too strongly inculcated, that, in treating disease, the bias of some theory, true or false, consciously or inconsciously, can be resisted by none. To think or expect otherwise, is truly chimerical. Neither as professors nor as practitioners, can medical men divest themselves of the influence of preconceived notions and latent predilections, in favor of modes of treatment, enforced in the writings of systematic authors of repute. Theory, of its own kind, calls forth the officiousness, even of an old herb-woman of a village. When recommending to some old man, the nostrum or "simple" after the use of which, freedom from suffering had been experienced by her, "What is good for a goose can't be bad for a gander," is the vulgar and accredited axiom, illustrative of the empirical principle, agreeably to which her farrago is tendered.[1]

Few, confessedly, who observe closely, will doubt that those nicknaming themselves—humble matter-of-fact practitioners, are the most self-duped of all theorists. The ignorant and dogmatic physician differs from the enlightened rationalist markedly in this; that in proportion as his theory is erroneous and absurd, the more perversely does he act upon it, as if the universality of its application were indisputably ascertained.

Theorizing in medicine cannot be dispensed with now. But many "*medical*," that is to say, conjectural "facts"—for such is the depreciatory sense in which the adjective term, in quoted italics, is characteristically applied by several—not only may be advantageously dispensed with, but should be expunged from the motley tables of science, which, for twelve centuries and upwards, have been disfigured by a hybrid and barren admixture of romance and reality. To such an extent, indeed, have imperfect obser-

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[[1] In private practice men are occasionally met with, who profess themselves "mere practitioners." This is a phrase whose precise meaning, if it have any, can seldom be intelligibly defined, even by those who self-apply it. When "matter-of-fact" "common-sense" professors—(so many, among others, of the self-applied titles) are watched, they are found, by their adopted and routined modes of practice, to be consciously or inconsciously, disciples, at the least by *example*, of the precepts inculcated by Cullen, Brown, Clutterbuck, Abernethy, Mills, Broussais, the Expectantists, &c. When told of this, and their practice adduced, in order to confute professions oftener the offspring of defective education than of affectation or want of judgment, many of them are exceedingly wroth. Others not steeled against conviction by self-love, and "errors of the *den*" (so inductively described by Bacon), upon explanation, confess having, all along, been either Cullenians, Brunonians, or Brousaïists; and with as much ingenuous amazement, as the man who naïvely exclaimed "Dear me! have I really been speaking *prose* all my life, without knowing it!"]

vation, and that bad faith (adverted to at page 89), banefully contributed to falsify and obstruct the progress of legitimate medicine, that on proceeding to act upon the antithetical but shrewd suggestion to *advance backwards,* inquirers have found it a most irksome and difficult first step, to force open a pathway, however narrow, so as to discern truth from falsehood or unintentional error. Some classes of writers, but particularly the narrators of isolated cases, are prone, not merely to conceive and act upon as realities, what are but fancies, but to commit to paper and propagate through the medium of medical societies and other valuable associations, as indubitable facts, what truly, at best, are but conjectural notions. Hence the commendable scepticism with which supposed facts occurring in practice, how extensive soever, are proverbially received by the most unprejudiced of the medical profession. It is this proneness to mistake phantasies for realities, which makes a life-time of luxuriant experience, *per se,* little else than a blundering delusion. Unless the practitioner's several senses have been properly disciplined in the principles and practice of CLINICAL OBSERVATION, and unless, too, systematic reflection is superstructured upon a substratum of carefully collated and scrutinized facts, it is by an abuse of terms alone, that the most aged practitioner can usurp the misapplied title of "experienced" in medicine.[1]

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[1] [At p. 174 of *Reflections on the Decline of Science in England; by* CHARLES BABBAGE, *Lucasian Professor of Mathematics in the University of Cambridge,* the reader will find a chapter, well worthy of perusal, *On the Frauds of Observers.*

Mr. Babbage remarks: "Scientific inquiries are more exposed than most others, to the inroads of pretenders; and I feel that I shall deserve the thanks of all who really value truth, by stating some of the methods of *deceiving,* practised by unworthy claimants for its honors, whilst the mere circumstance of their acts being known, may deter future offenders." Among several species of imposition which have been practised in science, "which are little known except to the initiated," Mr. Babbage treats of four classes, under the titles of *Hoaxing, Forging, Trimming,* and *Cooking.* As an example of the first, the hoax of M. Gioeni is noticed. The editors of the *Encyclopédie Méthodique* copied the Chevalier's description of a *new* family of TESTACEA, with illustrative figures! No such animals existed, except in the fertile brain of the Maltese Knight. Encke

The discredit, into which the healing art has been brought, instead of being imputed to fancies and opinions

proved the Chevalier D'Angos' observations on the second comet of 1784, to be, as they were long suspected, mean babyish forgeries.

The forgery of "the Bristol papers" by Chatterton, is well known. Allusion may also be made to the pretended discovery by a Mr. Ireland (recently dead) of an unpublished play of Shakspeare's, entitled *Vortigern and Rowena.* It was submitted to the public, and various judges were imposed upon. The forger had abstracted blank leaves out of very old books, *without the water-mark,* so that the date of the manufacture of the paper on which the play was written, might afford no clue to the discovery. Other leaves were dexterously introduced, *with* devices corresponding to the period at which the Bard of Avon was presumed to have written the *Vortigern and Rowena.* Mrs. Siddons sustained a part in the play, which was acted. Kemble, however, refused his support to what he and Mr. Gifford (editor of the Quarterly Review) considered as a *genuine* forgery, before "Ireland's Confessions" were extorted and *published!*

But as these are painful and odious traits, the following ludicrous illustrations of the hoaxes and practical jokes frequently carried on in learned societies, are appended to this note, without any apology, were it merely to serve as a little *light,* to relieve the *shade* of the foregoing melancholy proofs of human weakness.

Judge Brackenridge the elder, had a deadly hostility to philosophical societies, against which he waged a *bellum ad internecionem,* in the periodicals, and in his celebrated satirical work *Teague O'Regan.* The real cause of his ire, known to few individuals living, came under the observation of the original narrator of this anecdote, [condensed from the New York *Knickerbocker,*] when the provocation was given. In 1785-6, he was a candidate for a seat in the legislature of Pennsylvania, Alleghany. Parties ran high. His election was carried triumphantly by the constitutionalists, under the impression that he would advocate some measures which they had much at heart, and among which was the reception of "province money" in payment of arrears due for land. To the utter amazement and indignation of his constituents, Brackenridge not only voted, but made a powerful speech *against* this measure! He was naturally and violently denounced. It was about this period, that he became a candidate for a membership in the *American Philosophical Society,* to which his talents gave him a claim equal, if not superior to any of that body. His vote, however, respecting "the money" was an inexpiable sin: he was accordingly black-balled. This irritated him beyond measure, and led to his warfare against the society, and against all similar institutions.

In his neighbourhood, as related by himself, was a body of sages calling themselves "the *Philosophical* Society," which the Judge delighted in *Hoaxing*; and how successfully, too, will appear by the narrative of the two absurd hoaxes which he afterward provokingly explained in various Journals, to the infinite amusement of the public. He stole his grandmother's fan, and covered it for a considerable time in a mud puddle. Having disguised it as completely as possible, he forwarded it to the society, with an elaborate description to prove, that it was—*the wing of a Bat.* It was received with due solemnity. A vote of thanks was passed to the donor. An animated debate arose as to the *species* of bat having been promulgated, in lieu of realities and facts, with signal injustice, has been ascribed to the undue influence of false theories in medicine. If, in each of its four-fold relations, inquiry be thoughtfully instituted by advanced students, in respect to facts as well as to theories, in respect to practical as well as to educational systems in medicine, the general result arrived at will be found not to widely differ from the aphoristic remark of Cullen—*there are more false* FACTS *than false* THEORIES *in medicine.*

The value of theory in science has been thus ably estimated:—"A combination of theory with facts, of general views with experimental industry, is requisite, even in subordinate contributors to science. It has, of late, been common to assert, that *facts* alone are valuable in science; that theory, so far as it is valuable, is contained in the facts; and in so far as not contained in the facts, can merely mislead and pre-occupy men. But this antithesis between theory and facts, has probably in its turn contributed to delude and perplex; to make men's observations useless and fruitless. For it is only through some view or other, of the *connection* and *relation* of facts, that we know what circumstances we ought to notice and record; and every laborer in the field of science, however humble, must direct his labors by some theoretical views, original or adopted. Or, if the word *theory* be unconquerably obnoxious, as to some it appears to be, it will probably still be conceded, that it is the rules of facts, as well as facts

to which the "wing" belonged. A committee of seven was forthwith appointed to ascertain—whether it was the wing of a *Madagascar* or of a *Candia* bat. The committee sat three weeks! At last, after consulting BUFFON's Natural History, GOLDSMITH's Animated Kingdom, &c., they reported that "it must have belonged to a Madagascar bat, *because* (mark the logic!) it wanted the characteristics of the true Candia bat."

It was pronounced the greatest curiosity in the Museum, except a large sheet of *brown paper*, which the Judge had hung up the chimney, and disguised with soot and dirt, and palmed upon the philosophers of the society, as—part of a *Brahmin's shirt!*

Cooked or *trimmed* cases and reports, rarely, if ever, find a mischievous circulation in the medical and scientific journals of the present day. Thanks to the vigilance and independence of their lynx-eyed conductors.]

themselves, with which it is our business to acquaint ourselves. When contrasting the conduct of the astronomers of our own and of other countries, professor Airy, in his Report, says (p. 184)—'In England, an observer conceives he has done every thing when he has made an observation. In foreign observations, the exhibition of the results, and the comparison of the results with theory, are considered as deserving more attention, and demanding *greater exertion of his* INTELLECT, than the mere observation of a body on the wire of a telescope.'[1]

"It may appear to many, that by thus recommending theory, we incur the danger of encouraging theoretical speculations to the detriment of observation. To do this, would be, indeed to render an ill service to science; but we conceive that our purpose cannot so far be misunderstood. Without here attempting any nice or technical distinctions between theory and hypothesis, it may be sufficient to observe, that *all deductions from* THEORY, *for any other purpose than that of comparison with* OBSERVATION, are frivolous and useless exercises of ingenuity, so far as the interests of physical science are concerned. Speculators, if of active and inventive minds, *will* form theories, whether we wish it or no. These theories may be useful, or may be otherwise—we have examples of both results. If the theories merely stimulate the examination of facts, and are modified as, and when, the facts suggest modification, they may be erroneous, but they will still be beneficial: they may die, but they will not have lived in vain. If, on the other hand, our theory be supposed to have a truth of a superior kind to facts —to be certain independently of its exemplification in particular cases: if, when exceptions to our propositions occur, instead of modifying the theory, we explain away the facts:—our theory, *then*, becomes our tyrant; and all who work under its bidding do the work of slaves—they themselves deriving no benefit from the result of their labors."[1]

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[1] Address, delivered in the Senate House of Cambridge (June, 1833) on the occasion of the opening of the Third General Meeting of the British Association for the Advancement of Science. *By the Rev.* W. WHEWELL, M.A., &c.

Having remarked, if not shown, that systematizing in medicine is now indispensable, and, as systems are based on theories dependent on facts, true or false, erroneous facts, and not systems, are, alone, justly chargeable with having proved idols, to which hecatombs of human victims, in every age, have been sacrificed.

It were well, if every clinical teacher would consider it incumbent, *ex officio*, to premise his course of prelections with an exposition of his medical creed. Much benefit would result to pupils, if early possessed with an outline of their instructor's reasons for the medical faith that is in him. To discharge so important a duty, one or two discourses of ordinary length, would suffice. Continental professors, with few exceptions, carefully eschew over-indulgence in "Introductory Lectures." Compositions, so styled, until lately, were little better than a tissue of unmeaning generalities—bubble episodes, in the blowing of which much valuable time was vainly frittered away. The outset of every course of instruction is the period, of all others, which should be seized upon, to make an abiding impression on the minds of those medical conscripts, entering upon the most arduous of all practical campaigns in medicine—accurate observation of the fluctuating phenomena of PATHOLOGICAL ACTION, and warfare against it, at the bedside of the sick.

Convinced of the expediency of acting upon such views, for the benefit of junior students, the following pages of this PART are devoted to brief notices of Homoöpathism, Expectantism, and Eclecticism; after which will be submitted, freely-rendered but condensed translations of the select discourses, pronounced by professors Rostan and Cayol, at the opening of their cliniques.

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[1] See pages 100–103 of the *Edinburgh New Philosophical Journal*, Vol. XXX.

[For opinions as to the value of theory and of the facts in medicine, see the preface to professor *Alison's Outlines of Physiology*, and the introductory preface to the third edition of Dr. Abercrombie's work upon the Brain. Compare, passim.]

Homoöpathy. "The fundamental principle of Homoöpathy *(ὅμοιον πάθος)* is expressed in its name. It is *the art of healing, founded on resemblances;* or more plainly, it seeks to establish as a universal truth, the proposition that *every disease is curable, by such medicines as would produce, in a healthy person, symptoms similar to those which characterize the given disease.* Opposed, then, to the ancient dogma of the palliative method, "contraria contrariis," the observation, reflection, and experience of Hahnemann have led him to pronounce the oracular decree —*Similia similibus curentur.* That is, *Let one nail drive out another:* or, in the language of the poet—

> Tut! man, one fire burns out another's burning,
> One pain is lessened by another's anguish.
> Turn giddy, and be holp by backward turning;
> One desperate grief cures with another's languish;
> Take then some new infection to the eye,
> And the rank poison of the old will die!

—lines, which plainly evince that Shakspeare, who was so many things without suspecting it, was, among the rest, a Homoöpathist!

Hahnemann grounds his division of the healing art, into three branches. First stands the *homoöpathic,* the "only proper" method, imitating Nature in her most scientific moods. Then the *allopathic,* or *heteropathic,* hitherto the commonest method, which hopes to cure disease, by exciting some dissimilar affection. Lastly, the *antipathic,* or *enantipathic* (the palliative) which meets a disorder in the teeth, opposes contrary to contrary; gives for a season a seeming relief, but ends by making matters worse. So says Hahnemann, and it is a proof of his celebrity that he has made these learned appellations current over great part of the Continent. There, the dispensers of health and longevity are now known as Homoöpaths or Allopaths."[1]

[[1] Homoöpathy has been known for upwards of twenty years in Germany. "Be the doctrines of Hahnemann true as they are pleasing, or false as they are startling by their novelty, it is time that they should be made known to the British public, and submitted to the keen and sagacious criticism of our own Medical School." See a comprehensive article (*Query,* written by the late Dr. A.

Expectantism. Non-interference is a policy, occasionally as safe in guarding the constitution of men from latent aggressions in unexpected quarters, as non-intervention in politics is sometimes the best policy to harmonize the balance of power in the constitutions of kingdoms. *Optima interdum medicina est, medicinam non facere.* But, between the method of rational forbearance urged against that *medicinal perturbating* and drenching of patients, simply because indisposition exists, and the *médecine expectante* of the French, there is as much difference as there is between use and abuse. That even the estimable Corvisart, himself, abused the expectant treatment, must be known to all by whom the affecting narratives of the death of one of the young princes of Holland, and particularly that of the death of the Empress Josephine, have been read, as detailed in the unrivalled translation of Bourrienne's *Memoirs of* NAPOLEON, and in the *Life of the Ex-Empress Josephine,* by Dr. Memes. The expectant method was carried to such an extreme by the Hippocratists, that by the last of the family of Asclepiades, it was shrewdly characterised *the study of Death!—(θανατου μελετην.)*

Eclectics ought to extract the best part of all doctrines, whether ancient or modern, irrespective of men or measures, and should carefully reject what they consider either as heterodox or apocryphal. Their duties are most laborious. The author of the article *éclectisme,* in the french modern encyclopedia, observes—Les éclectiques sont donc toujours des hommes d'un merite supérieur. Ils ne se trompent jamais dans le choir qu'ils font dans les différentes sectes, et il suffit de s'inscrire dans la leur, pour être désormais infaillible.

Waving the irony of the essayist, could eclecticism effect the amount of benefit expected from it, every judicious

Duncan, Jun.?) in the 50th vol. of the *Edinburgh (Literary) Review.* An unbiassed series of clinical experiments were recently made by M. Andral at Paris. The results showed Homoöpathy to be *Vox et præterea nihil.* A tabular *exposé* of M. Andral's experience, is given in a recent number of the *Edinburgh Medical and Surgical Journal.*]

teacher would proclaim and enforce its sterling advantages. Many, however, influenced by their own notions, act upon misinterpreted meanings of the term. Judging from his Memoir, Guérin understands by eclecticism, the experimental method perfectionated by analysis! The fact is, in the actual state of science, it is scarcely possible for any one to disenthral himself of extraneous bias, to such an extent, as to come up to the standard of freedom from prepossession, so as to merit the title of being, truly, an ECLECTIC. Though so many of the French expatiate, in a rapture of self-complacency, upon the value of dispassionate eclecticism, yet, strange as it may appear, not more, perhaps, than two of their many leading authors, at this hour, evince themselves uninfluenced by *amour-propre*, veiled or confessed partizanship, and the most glaring sectarianism. With the most marked exception in favor of M. Andral, whose merit, as an eclectic, is confessedly great—great, indeed, beyond all precedent, and without the apparent approach, even, of a rival—there is far more of a judicious spirit of general eclecticism in the writings of standard british, than in those of standard french authors. The opinion just hazarded may, perhaps, be said to emanate from, what opponents might term, the prevention of nationalism. Possibly.

Broussaiism. The briefest sketch, even, of the creed of M. Broussais, cannot here be submitted.[1]

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[1] [Those interested will find many excellent remarks on "la doctrine physiologique" in various volumes of the *London Medico Chirurgical Review*, and of the *Edinburgh Medical and Surgical Journal*; see the general indices to these periodicals; and, likewise, the faithful summary of M. Broussais's Address to the Royal Academy of Medicine, published in the *London Medical Gazette*. The model of the appeal last referred to, would seem to be Othello's celebrated speech to the Duke and Council of Venice, in the third scene of the first Act of Shakspeare's Play of the *Moor of Venice*: "Most potent, grave, and reverend Signors," &c. Compare *passim*.

Whoever has closely watched the progress of french medical literature, during the last few years, must have been struck with the many softenings down, and trimmings, which Broussais's doctrines and practice have undergone. Broussaiism, as it is in 1835, is not Broussaiism as it was. Owing to the successive embraces which the "*new*" doctrine has received from its author and his bro-

From the digested view of an ample catalogue of such able men as Chomel, Boisseau and Louis, Andral, Lallemand, Dubois, Rostan and Cayol, whose recorded labors have enriched the archives of medicine, and whom science's herald proclaims as amongst the most gifted of her continental aristocracy, the creeds of the last two named have been singled out for exposition. Materialism, is the creed of Rostan: Vitalism, is that of Cayol. Both doctrines are alike world-renowned, and, with some recent eclectic modifications, may be said to be the most conspicuously placed of all, in the existing philosophy of medicine.

With the exception of Broussais, few writers of the day seem so alive as Rostan to the vast (and how often undetected!) strength, which attention to the grammar of reasoning imparts to all scientific writings, without exception. Feeble—feeble, because illogical, writers, proverbially spoil the best controversial cause. The superior attention which the argumentative disciples of Materialism have knowingly paid to that form of expression, to which correct reasoning on any subject-matter whatever, may ultimately be reduced, constitutes the most *material* agent of *their* power, in promulgating that creed. On the other hand, to inattention to, rather than to ignorance of the syllogism, as a test of correct reasoning, should the seeming and verbally real feebleness of many vitalists in medicine, and of controvertists in theology, be attributed, when contending with wily opponents, versed, *ad unguem,* in the principles of logic. For the words in the original, substituting the following epithet in small capitals, a passage is here quoted from one of the many truly valuable productions of the Archbishop of Dublin. If, says Dr. Whately, " the advocates of VITALISM think proper to disregard this help,

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ther Bruins of the Press, it has assumed a much more bear-able shape, and seems less exclusively calculated for the Meridian of Paris. Not that the " only true doctrine" was ever destitute of what the critics of the legitimate Drama term " points;" for, exclusive of egotistical attacks on its honorable opponents, as professor Chomel rather cynically observed it has three cardinal points—*gastritis, gum-water,* and—*leeches!* Voilà, toute la medécine physiologique!]

(attention to logic,) they will find, on careful inquiry, that *their opponents do not.* And let them not trust too carelessly to the strength of their cause. Truth will indeed prevail, where all other points are nearly equal; but it may suffer a temporary discomfiture, if hasty assumptions, unsound arguments, and vague and empty declamation, occupy the place of a train of close, accurate, and luminous reasoning."[1]

Profundity apart, were the logic of otherwise powerful writers, used in the cause of Vitalism, only equal to their zeal and hearted staunchness, how different would not be the effect of the impressions, grafted permanently on the minds of sifting, truth-seeking readers! Let Vitalists imitate the solicitude with which Materialists guard against glaring slidings in of error, between each premiss from which they set out, and the conclusion therefrom deduced. Controversial writing can never securely bridge a foot of the ravined way to truth, so long as correctly propounded forms of expression continue monopolized, so to speak, by the disputants of one side.[1]

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[1] *Elements of Logic*, &c. by RICHARD WHATELY, D.D. *Principal of St. Alban's College, and late Fellow of Oriel College, Oxford. Third Edition.* 1829.

[Medical students should make a point of perusing this volume, during each autumnal recess. The chapters on *Fallacies*, *Induction*, *Discovery of Truth*, *Verbal* and *Real Questions*, cannot be read too frequently. Logic is undeservedly neglected by medical students in general, and wherefore, if not from misconception of its office, it would be difficult to determine. A knowledge of logical rules, Dr. Whately observes, "will not, indeed, supply the want of other knowledge; nor was it ever proposed by any one who really understood this science, to substitute it for any other; but, it is no less true, that no other can be substituted for this; that it is valuable in *every* branch of study; and that it *enables us to use the knowledge we possess, to the greatest advantage.*"

Many are apt to exclaim, *Logic won't always do in Medicine.* Those who so express themselves, might, on inquiry, perceive, that the difficulties and errors are —"*not* in the process of reasoning itself, which alone is the appropriate province of Logic, but in the *subject-matter*, about which it is employed." "Complaints have also been made, that Logic leaves untouched the greatest difficulties, and those which are the sources of the chief errors in reasoning, namely, the ambiguity, or indistinctness of terms, and the doubts respecting the degrees of evidence in various propositions." . . . "Such a system of universal knowledge as should instruct us in the full meaning, or meanings, of every term, and the truth or falsity, certainty or uncertainty, of every proposition—thus superseding all other studies—it is most unphilosophical to expect, or even to imagine. To find fault with logic for not performing this, is, as if one should object to the science of Optics, for not giving sight to the blind; or, as if (like the man of whom Warburton tells a story, in his *Div. Leg.*) one should complain of a reading glass, for being of no service to a person who had never learned to read."—*Op. Cit.*]

No longer to detain the reader, the PROLEGOMENA unfolding to us the professional creed of M. Rostan, are here served up. The valuable interspersed suggestions hinted forth, by which the advancement of clinical instruction, as an educational science and an art, may be promoted, can scarcely fail to deeply interest the student's mind, and to sustain throughout the attention of every one whose curiosity is laudably directed. Let paragraph by paragraph be siftingly read, and re-read with the entire series of propositions, *ab ovo usque ad mala*. In this way a thorough acquaintance will be attained with the premises and successive links in the chain of reasoning, by which his notions are, so far, logically propounded, by Rostan the MATERIALIST.

[[1] To make the source of any fallacy or sophism generally known, is to have approximated half-way towards remedying its mischief. No apology for the length of the remarks, in the text and in this and the foregoing note, will be deemed called for, by those who are aware that Vitalism and Materialism, as commented on in medical works, are not the harmless day-dreams, by some supposed. Charges of unbelief and of disbelief have been preferred against the profession generally—charges which, if not owing to, have at least been signally encouraged by that weakest, as of all modern affectations the most puerile—the affected infidelity boasted of by some students in medicine. And farther. There are individuals in every age, who ransack the writings of a certain sect of medical authors solely with a view to reproduce and popularize passages of a sceptical tendency. Unless much mistaken, with what ecstacy were not the gossamer-veiled doctrines of a L———, eagerly commented on by a fellow-Carlyle?]

SECTION IV.

EXPOSITION OF THE MEDICAL CREED OF M. L. ROSTAN.[1]

If there be among my readers, any one of a timorous conscience, (which I am far from thinking, because, to become a physician, it is necessary to be essentially a philosopher,) let him be of good cheer. I am ready to make all the concessions he may desire.

The first duty of an upright man, is to respect the belief of the many. What I am about to say relates solely to the healing art.

Organs and functions only, exist in man. Functions are merely effects. Organs are adapted to act: they act. Functions cannot precede organs, nor exist without them, because effects cannot precede their causes. They are, therefore, dependent upon them.

As the functions, whose aggregate constitutes life, do not precede organs, nor exist independently of them, it is absurd to say, that life can precede organization. On the contrary, organization is the necessary condition of life. Where there is no organization, there can be no life.

Digestion cannot exist without digestive organs; respiration without respiratory organs; circulation without circulatory organs; vision, hearing, smelling, tasting, touching—without visual, olfactory, auditory, and tactile organs. Hence organs are indispensable to functions. As to the properties styled vital, because they cannot exist without life, they are not—they cannot, be otherwise than functions. Contractility and sensibility, distinguished in a sufficiently bizarre manner, into sensible and insensible, are merely functions of the brain and its dependences. Without these organs, or their equivalents, they do not exist. They are proportioned to the degree of the integrity, and of the intensity, of the organs of innervation.

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[1] Médecin de l'hospice de la Vieillesse, (Femmes,) Ci-devant Salpêtrière; Professeur de Médecine Clinique, &c. *Paris.*

But, it may be said, organs and life are two different things; because the former may exist without the latter: they are not, therefore, in necessary dependence, since they may be separated. This would be exactly akin to maintaining, that the movement of a pendulum is independent of the pendulum, because the pendulum can exist without the movement! Life is nothing else than the organic disposition necessary to motion. We receive this disposition at birth.[1] The machine is then mounted. It goes on, until accidentally or naturally altered. Where a body exists without life, it is in consequence of the organic disposition necessary to the exercise of the functions having undergone some derangement.

Health and Disease. When the organs, and the functions executed by them, are in their normal type, a person is in a *physiological state:* it is healthy anatomy and physiology, so to speak. When the normal type of the organs and functions ceases, an individual is in a *state* of *pathology*: it is morbid anatomy and physiology. *Healthy anatomy and physiology, morbid anatomy and physiology*—"voilà toute la médecine."

As there are organs and functions only, and the latter dependent upon the former, it rigorously follows, that whenever a function is altered in a certain manner, there must be disease in an organ, or in one of its constituent parts.[2] This organic alteration is *profound* or *slight, primary* or *consecutive, persistent* or *fugacious, sensible* or *insensible,* to our different means of investigation. But it is necessary, inevitable, be it what it may, known or unknown. Exist it must; for, *ex nihilo, nihil fit.*

The reciprocal proposition is equally rigorous. Where there is organic, there must be also functional, alteration.

This axiom apparently suffers numerous exceptions. Yet, just as there are certain organs which are double, [multiple, or in pairs,] and which can mutually replace

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[[1] *Query*—Rather when we are *germinated:* surely there is life in the *intra* uterine product, of conception?]

[[2] It will be presently seen that professor Rostan also includes the *fluids.*]

each other, so, nature may have resources, as yet unknown to us, for replacing a function.[1]

If man is a compound of organs, it is evident that each and all of such organs are susceptible of being less or more altered in their composition, according to the causes which may act upon them.

If all the organs constituting man be composed of bloodvessels—arterial and veinal, of lymphatics, and of cellular and proper tissue, there is nothing to prevent each being susceptible of becoming diseased, primarily and independently of every other. If each organ is directly influenced by a particular modifier, or by several, as the stomach by aliments and drinks, the lungs by air and respiratory efforts, the brain by sensations, and intellectual and moral acts, it may be rigorously concluded, that each of these organs may become diseased without the concurrence of the others. Every contrary proposition is unsustainable.

Let us enter into some details. We approach great and delicate questions. I must premise, that it is far from my intention to impugn received opinions. If there be among my readers any one of a timorous conscience, (which I am far from thinking; because, to become a physician it is necessary to be essentially a philosopher), let him take courage. I am ready to make all the concessions he may desire. The first duty of an upright man is to respect the belief of the many. What I am about to say, relates solely to the healing art.

Bodies, and properties of bodies, alone exist in Nature. What is neither matter nor properties of matter, is nothing. Matter is either inorganized, or organized: GRAVITATION is the *aggregate*, AFFINITIES are the *details* of the laws which regulate the former. Extent, bulk, form, density, porosity, impenetrability, elasticity, divisibility, color, temperature, &c. are the general properties of matter. Motion is, likewise, a property of matter, for it cannot exist without it. What *is* MOTION, but *a* BODY *being moved?*

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[1] [How numerous the instances of *vicarious* actions (functions) in organs, more especially at the epochs of dentition and of puberty, particularly in the female constitution.]

As regards organized matter, other properties exist, which distinguish it from inorganic matter. These are, especially, sensibility and contractility. They have been styled *vital* properties—a title which has led to their being considered as abstract self-existing entities, characterizing life, properly so called. Here observe to what an extent ideas are *name*-ridden. This mode of considering the properties styled vital, has caused innumerable errors. From the instant vital self-existing properties are recognised, we are constrained, in consequence, to recognize vital diseases also,—absurdities namely;—absurdities unfortunately yet credited! In our opinion, the properties named vital, are but the *result* of matter organized, of matter in motion. The functions whose totality constitutes life, are merely the play, the exercise of our organs. Hence respiration and digestion are not terms of such logical import as respiratory *organs*, digestive *organs*, &c. Now, if motion cannot exist without matter, or, if you prefer it—if functions cannot exist independently of organs, it will clearly follow, that all functional derangement must be the necessary result of derangement of the organ executing it. It may be urged in objection—"Life, you say, is but the play of organs, which play or action is the result of organization in a certain condition. But we ask, why should life not continue, where the organization still exists? The corpse before your eyes, was alive a short time since. Its organization is the same, and yet it no longer lives." No: assuredly its organization is not the same; it has undergone a profound change, which, though it may elude the detection of our senses, does necessarily exist.[1]

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[1] [The indefinite manner in which some words are used, particularly and unfortunately in medical and theological writings, is well exemplified in the case of the epithet "same," in the text. How is it possible, that the organization, if *dead*—in other words, the "remains" of the recently quickened machine, can be the *same* as the organization when *living*? The "cheat of words," the cheat of thought!

In Dr. Whately's LOGIC, "Same," "One," and "Identical," are perspicu-

When a superstitious respect for the tomb prevented the dead being interrogated for the benefit of the living, the majority of diseases were essential—general—seatless: it was imagined that they left not a trace behind them. Afterward, when the torch of philosophy was introduced among civilized nations, the inanimate remains of the human body were permitted to be scrutinized, and their debris, previously the humiliated prey of worms, became the fruitful source of the most useful truths. Derangements of function—"mere symptoms" thenceforward became organic alterations. Symptoms, *per se*, lost their ancient value, and were only useful in so far as they indicated organic lesions. Yet, in our day, vital diseases are still recognised. Such is the sway of prejudice! A vast modern compilation, an incoherent "omnium-gatherum" of doctrines, contains a long article upon this pretended kind of affection. Unfortunately, there *are* cases wherein our means of investigation fail in enabling us to recognise any organic alteration: but to conclude that none exist, is a strange error. Nobody dies of nothing. If, truly, no alteration existed, it would be necessary to admit that one may die of nothing, which is absurd. When no apparent organic change is found, we should rest content with ranging the disease which destroyed the individual, in the class of unknown diseases, or of such as are but partially known. It may be concluded from what has been said, that life is but the result of the organism in a certain state: that functions are merely the motions—the play of organs: that derangements of functions necessarily announce derangements in the organs which execute them: that life can

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ously treated of. See the Appendix, to his powerful work, *On certain terms which are peculiarly liable to be used ambiguously.* The word *same* is employed in a secondary, as well as in a primary—its only proper, sense. "Nothing, perhaps, (says Dr. Whately,) has contributed more to the error of Realism, than inattention to this ambiguity." "Identity does not admit of degrees." As to the case in point, the very absence of *same*ness is indicated by the adjective or *qualifying* term, "dead," as applied to the organization, in contradistinction to *living* or vital. The overlooked influence of many ambiguous terms in medicine, is great, as will be further alluded to in an after part of this volume.]

only cease, where the organization ceases to be perfect; in other words—in the condition necessary for its action.

These truths once recognised, it is impossible not to admit, that the perfection of pathology consists in the knowledge of organic changes; and, that progress cannot be made in the science, except by fixing the seats of diseases, and clearing up their diagnosis.

Despite of the fetters by which the propagation of sound and positive ideas is sought to be opposed—in spite of the immense efforts attempted by the spirit of system or of party, TRUTH stalks at a giant's pace, and ranges under her triumphant banner the whole of the existing generation. A generous youth, enthusiasticly fond of whatever is beautiful and good, greedy of instruction, with the sagacity of mature age weighing the sophisms opposed to reason notwithstanding the seductions with which they are encompassed—rejects them with contempt, and assures to truth an imperishable empire. The monstrous reign of error and falsehood can be but ephemeral. Hope and fear may temporarily support it; but it is not always easy to keep together such auxiliars, and the monument which they bolstered up, ultimately crumbles upon its fragile foundation.

Medicine, which, above all human institutions, should be the least accessible to THE PASSIONS, is, nevertheless, far from being exempt from their malign influence. It is to-day as a palisaded field—a LIST, wherein self-love and party spirit give themselves up to endless tournaments against common sense. One defends even unto the death, systems at once erroneous and absurd, in pretended interest for humanity, but assuredly more from concern for its reputation and his own aggrandizement. Another strives to rejuvenesce superannuated notions, and by considerations still more despicable, and upon the hollowest pretexts, to impose silence on those whose precepts undermine such discredited principles. Thus it is, that interest and egotism, under the mask of respected names, tamper with the nearest and dearest interests of mankind.

In all questions of high importance, whose solution immediately involves the welfare of the human race—when sectarian differences prevail—when error and falsehood, sustained with equal audacity on both sides, are presented under the mask of truth,—and when this truth is entirely disowned, or trampled under foot through passion,—worthy men, sickened with the irksome burden of this species of anarchy, eagerly desire the dispersion of such a chaos. Convinced that one of the two parties cannot always be in the wrong, and the other in the right, they feel the necessity of precisely knowing the degree of falsehood and of truth composing conflicting opinions. Left to themselves, encouraged and repulsed in contrary directions, first by the one party, and then by the other, and destitute of solid bases upon which they may rely, they make vain and painful efforts to attain this result.

For some time, a division scandalous and inauspicious to humanity, reigns in the healing art. Every one devoutly wishes for its termination. All witness with pain the obstinacy of the one party, and the exaggeration of the other. It is, indeed, truly a melancholy spectacle to meet, on the one part, men tainted with superannuated notions, refusing to admit the slightest progress—the least change in their antiquated doctrines; and, on the other, ultra-reformers, desiring to smash every thing, regardless of the experience of ages, and disdainful of making the slightest concession. Doubtless, both are sincere, (for the credit of human nature, we must suppose so,) but truth, no more than error, can be the exclusive share of either of two parties. Truth is ever commingled with falsehood in contrary doctrines. The erroneous part of a doctrine could not be upheld, but for the favor extended to the sprinklings of truth, by which the pill is gilded. Were either of the two made up exclusively of falsehood, it would be speedily annihilated. Let us strive to point out the errors with which both are reproachable, and educe profit from the truths which we observe.

It has recently been sustained by men of great celebrity, that sensibility, irritability, contractility, can be diseased; that vital properties—such, namely, as only belong to living bodies, are susceptible of being augmented, diminished, abolished, or perverted, without any kind of lesion; that an organ, or individual even, can become less or more sensible, less or more irritable, without its being possible to remark any alteration in the organs: and thence it has been concluded, that *vital* diseases—diseases of the *vital principle*, exist.

It would be equally rational to admit of alterations of elasticity, independent of elastic bodies, or of every other property of matter, without the participation of the bodies themselves,—as to acknowledge diseases of the vital properties, independently of the bodies endowed with these properties.

Moreover, what does *vital property* signify, if not a *quality* or faculty of a body gifted with life? What is it, but a body endowed with life, or else an organized body? If a body gifted with life be but an organized body, why make life a separate entity—why not admit that this life, which only exists where there is organization, is the effect—the result merely—of this organization? And further, why acknowledge diseases of life—vital maladies, independent of the organization?

We have for an instant admitted, that sensibility, contractility, and their subdivisions, are vital properties; but they are not more so than the faculty of respiring and of digesting, &c. Sensibility, contractility, and their subdivisions, are functions only, not properties: they are functions whose apparatus is the brain and its dependences. These functions are general, for the system of innervation is universally diffused.

This is not a mere dispute about words. The solution of questions of this kind is of such importance, that, in our opinion, but for these principles, further progress in medicine cannot be hoped for. When nothing is found, on dissection, agreeably to the hypothesis of vital diseases, one would rest satisfied with saying "there is nothing," and make no further examination! It is this very circumstance which has so long arrested researches as regards alterations of the brain. Paralysis, for instance, has been affirmed to be an essential disease, a diminution or an abolition of sensibility or of contractility; a conclusion which, in diseases giving rise to this symptom, has led to the administration of tonics and excitants, nux vomica and electricity, without the slightest discernment, because, forsooth, every paralysis is but a diminution or an abolition of vital properties: in other words, this opinion has led to the administration of drugs and treatment the most contrary and injurious to sufferers—nay, even to their destruction. Yet, this is styled a contention about words!

On the contrary, by considering every alteration of function as dependent on an organic alteration, when we find nothing, we say, search must be instituted *de novo*. Paralysis no longer is simply diminution or abolition of sensibility or contractility, but the sign of a lesion of organs, to which these functions are confided. Hence we are led to search out the lesions, to determine their nature and extent,—to note that the symptom depends on a multitude of different alterations; and the first advantage derived from our researches, is, to protect sufferers from a murderous treatment being resorted to. Is this a dispute about words? Let us conclude that *diseases independent of organic alterations do not exist.*

Neglecting or rejecting this truth, some have grouped under a common denomination, an assemblage—a series—of symptoms observed to be present, always in a determinate order. To the different groupes of morbid phenomena thus concentred, they have given the name of essential fevers.

We declare our disbelief in the possible existence of seatless diseases. Fevers, so considered, appear to us to be inadmissible: at least, we have not yet seen any.[1]

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[1] [It may be justly inferred, from the remarks in the text, that M. Rostan entertains either an erroneous, or an unfair, or a very vague, idea, of the adjective term, *essential*, (or idiopathic,) as applied to a particular variety of FEVER.

The celebrated author of the *Nosographie Philosophique* was the first who perceived the vagueness which prevailed in the history of continued fevers. A logical mind cannot

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To say the least, as a conventional term, either of the qualifying epithets is free from even the shade of a tenable objection. The following brief quotation illustrates the fitness and just bearing of the phrase. After adverting to the *inflammatory* and *typhoid* forms of FEVER, " of which the latter has this important peculiarity, that it may very generally be ascribed to the influence of *some* OTHER *cause* affecting the constitution, besides the inflammation itself." Professor Alison observes—" We have now to treat of Fever (almost always more or less of this last character) as it frequently occurs, either without marks of local inflammation, or with so slight or so variable marks of that kind, that we judge it as independent of inflammation. .... It is true, that that there are eminent pathologists who doubt of the existence of such Idiopathic Fever ; believing all febrile action to be dependent on local irritation and inflammation. But we set aside that doctrine in the mean time, simply on the ground, that physicians have generally described fevers, of the kind now in question, as *distinguishable by their* symptoms and history, *independently of all theory*, from any of the certain and acknowledged effects of INFLAMMATION ; and this being so, it is right to treat of the diseased states thus distinguished, in the first instance, separately ; and afterwards, to consider the *theory*, which would resolve the one into the other. And, although the term Idiopathic Fever may appear too theoretical to be used in the first instance, yet it is hardly possible to substitute another ; and if it be understood that it is at first used to designate peculiarities of symptoms, *independently of all theory*, it can hardly tend to mislead. .... We set aside, also, without hesitation, the objection that has been urged against the doctrine of Idiopathic Fever, that the term expresses only an abstraction," [urged by M. Rostan, as is seen in the text] " and therefore a nonentity ; because, what we mean to express by the term is not an *abstract* existence, as distinguished from individual *facts*, but a *general* change, or succession of changes, common to all the organs, and to almost all the textures of the body, as distinguished from such changes as are *partial*, *i. e.* confined to particular situations in the body,—and from the direct consequences of such partial changes." See pages 481–482, and the several sections onward to p. 527, of " *Outlines of Physiology and Pathology*, by William Pultney Alison, Professor of the Institutes of Medicine in the University of Edinburgh," &c. Edition, 1833. See, also, the summary glimpses of Dr. Alison's medical creed, in the concluding portion of the article, HISTORY OF MEDICINE, in the Cyclopædia of Practical Medicine, vol. iii. 1835.

By M. Rostan's own admission, and overlooking the assertion, that " les premières conceptions chez les hommes de génie sont presque toujours les meilleures" in the next paragraph, typed in italics and small capitals, although Pinel made " de grands efforts pour déterminer le siége qu' elles occupaient dans l'économie animale—pour les localiser en un mot," it is admitted—" *il faut l'avouer ce qu' il fit fut insuffisant?*" which can any thing but be wondered at. The very failure, indeed, so far proves how characteristically appropriate the term *essential*, or " idiopathic," is, to certain fevers, frequently recurring endure inept abstractions. So, in his earlier writings (the first conceptions of men of genius, almost always, are the best) he completely called in question the existence of essential fevers. If afterward, from being overcome by timid counsels, and dreading professional animosities, he considered it incumbent to give them a place in his works, he nevertheless made strenuous efforts to determine what seat they occupied in the economy—in short, to localize them. But, *his efforts* IT MUST BE CONFESSED, *were insufficient.* Other physicians made less or more unnoticed attempts to *dethrone* essential fevers, but it was reserved for M. Broussais to successfully combat these beliefs of ancient medicine. This is a justice we delight to render him. Posterity, doubtless, will have pleasure in acknowedging so important a service.[1]

Having exposed what appears defective in the old medical doctrines, we ought to say in what the new doctrine seems deficient. Suffice that we here advert to the new system admitting only of one disease of an individual nature, which, varied *ad infinitum* by a multitude of circumstances, presents a thousand different aspects, and constitutes *per se* all affections incident to humanity: that this malady is *"l' irritation";* that its most ordinary seat is the stomach and intestines, which organs are always primarily or secondarily affected. This doctrine, talentedly sustained by its inventor, has many partisans.

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illustrations of which, practitioners of observation readily recognise at the sick-bed, if medical absolutism and the pride of system are there, as far as is possible renounced.

[1] [It is difficult to correctly appreciate the compliment paid to M. Broussais for giving the *coup de grâce* to this item in the creed of ANTIQUE MEDECINE, Occasionally, throughout the 80 or 90 pages of his *Prolégoménes,* M. Rostan indulges the most singular vein of dubious irony against the "old" author of the "new" doctrine, as well as against the new doctrine of the old authors. Allusion is here made to this, because, from the manner in which M. R.'s creed is condensed from the original, only one or two examples occur, in the following paragraphs of this SECTION.]

In respect to M. Broussais, M. Rostan adds—Trop heureux si les traits de a critique n' eussent attaint que les erreurs! Trop heureux s'il n' eût pas dé passé le but!

We, ourselves, think that it contains good principles; but we are likewise of opinion, that it does not comprehend all truths, and, that it is fraught with a vast number of errors.

Struck with the faults of opposing systems, and anxious to shew their mistakes, M. Rostan was desirous of adopting a method, which, while wholly repudiating extremes, should appropriate whatever was useful and good. To this method, as developed in the following propositions, may be given the title of THE MEDICINE OF THE ORGANS, or as he says, what is better still, that of

NATURAL MEDICINE.

First Proposition.	Première Proposition.
In the living animal economy, there does not, indeed there cannot, exist, other than organs and functions. Functions are but organs in exercise. Whatever is neither an organ, principle of an organ, nor effects of organs, is as nothing to the physician.	*Il n' existe, avons-nous dit, et ne saurait exister dans l' économie animale vivante, que des organes et des fonctions; les fonctions ne sont autre chose que des organes en exercise: tout ce qui n' est pas organe, principe d' organe, effets d' organe, n' est rien pour le médécin.*

If the organs are sound, their exercise will take place conformably to a given type, constituting the normal or physiological condition. By the same reason, if organs are in a morbid condition, their exercise will not occur conformably to the normal state: there will be derangement of the functions. The consequence is immediate and rigorous. If the function is merely a result—an effect—it can only be perverted through medium of the organ, or of the organic system, which executes it, altered in some way—whether primarily or consecutively, sensibly or insensibly.

Thus, then, if diseased organs can exercise only perverted functions, this consequence, so precious for diagnosis, will be deduced,—namely, when a function is altered, the organ of which it is the charge, is not in its physiological condition.

Second Proposition. *All the organs may be primarily diseased.*

Deuxième Proposition. *Tous les organes peuvent être primitivement malades.*

In the beginning of the new doctrine it is maintained, with all the warmth of which the inventor is capable, that the stomach alone can be *primarily* diseased; that when other organs become affected, it is always consecutively. We shall be told, that this opinion, has for long been abandoned, never to be resumed. We are rejoiced at the concessions which have been made, forasmuch as they are the strongest proofs which could be given in favor of truth. But it is with pain that we have had conceded, first of all, that the brain can be diseased independently of the stomach; and, more recently, that this sad privilege may also be enjoyed by the lungs.

If the brain and lungs may be diseased by the action of their natural excitants, why cannot the heart, kidneys, uterus, and skin, be also primarily affected, without the stomach being so, either before or after them? What is there to prevent a cause extending its action directly upon one of these organs? Cannot impressions upon the senses, passions, excessive mental exertion, &c. directly act upon the brain? Must they, of necessity, previously pass by the stomach? Can shouting, singing, or respiring cold air, not occasion sore-throat, pleurisy, or hæmoptysis, without acting upon the stomach? If all of these modifiers of the organism can alter the viscera of which they are the natural excitants, why may not other organs be also primarily affected by *their* peculiar excitants?

All of our organs are composed of the same elements; all of them have their appropriate excitants. Why then should some be susceptible of disease, and others not? We consider such a proposition to be unsustainable, and that it is incumbent to admit that *all* our organs may become primarily diseased, independently of each other, without its being necessary that one of them, and that one always the same, should be previously affected. It may be added, that *there is no reason that it should be consecutively diseased.*

Another consequence of this truth is, that when an organ is multiple, *i. e.*, when several of its parts possess different attributes presiding over different functions, these parts may be diseased, independently of each other. This principle will be found of the greatest utility in the diagnosis of diseases, and particularly in distinguishing affections of the brain.

Third Proposition.—*Our fluids are susceptible of disease.*

Troisième Proposition.—*Nos fluides sont susceptibles de maladie.*

Our organs are not formed solely of solid elements: a very great proportion of fluids enter into their composition, and are closed in vessels, in which they circulate in their several cavities. These fluids are far from being simple and indecomposible. By an invariable law of nature, all compound bodies are susceptible of alteration, and of decomposition; hence the fluids are susceptible of alteration. In the actual state of science, we are completely ignorant of the nature of these kinds of alterations; as yet they have eluded our researches; but we cannot, from this, argue against their existence. To deny the existence of any thing, merely because of its never having come under the cognizance of our senses, is to commit an impervious blunder in reasoning. Exclusive solidists assert, that the fluids are always the result of an organ, the latter being necessarily altered previously to the fluids,—that when the blood, or other fluid, circulates in canals, these conduits must be diseased, *before* alterations can occur in the fluid which they contain.

It is easily seen how slender is the foundation, of such reasoning; for granting all fluids to be the result of the work of an organ, there is nothing to prevent a morbiferous cause directly acting on the secreted fluid contained in the vessels or particular reservoirs, without acting upon such vessels, or particular reservoirs. Nothing can hinder the profound action of caloric, or of any other agent. But let us take an indisputable example, which will demonstrate that the fluids may be primarily vitiated.

A person may be so circumstanced, as to be constrained to the habitual use of unhealthful food and drink. Those who make long voyages can use only salted provisions, stale biscuit, and stagnant water. The inhabitants of besieged cities devouring the flesh of domestic animals, and reduced even to cannibalism, and whole nations consumed by famine, only too strongly justify this afflicting and too admissible, supposition. It is easy to conceive, that such depraved food and drink may not indeed act upon the tissue of the intestines—not being sufficiently deleterious for that; but their daily use will occasion a vile kind of chyle: the blood which results cannot be of a good quality; it will be sensibly altered, and will exercise a noxious influence throughout the whole economy. When the vital fluid—the blood, the repairer and stimulant of all the organs—is contaminated or deteriorated, the latter necessarily must fall into a state, less or more, of Collapse. Hence, the general lassitude occurring without apparent cause, with relaxation and softening of the tissues; pallor, shrinking, yellowishness of the skin; anorexia, dyspepsia, fœtid defæcation; anxious and embarrassed respiration; small, soft, and concentrated pulse; languid absorption; head heavy, intelligence tardy, unfaithful memory, chagrined temper; heavy and unrefreshing sleep; copulation impossible; the slighest exercise followed by unsupportable fatigue; ecchymoses of various sizes are observed on different parts of the body; the lips become spongy and bloody; black and fluid hemorrhages, and a general infiltration of the cellular membranes ensue: the wretched sufferer will die, unless more healthful nourishment and generous potations are substituted for such aliment.

Analagous or different phenomena, may be produced by respiring deleterious air, as that of a marsh, or of an amphitheatre, or of air containing a less or greater quantity of organic matters in a state of decomposition. Such air, though incessantly introduced into the lungs, will not at all alter their tissue. Successive currents of blood, impregnated every instant with the principles of foul air, will not receive an equally favorable influence, as that which is imparted by the inhalation of the pure and balmy air of a vast and fine country.

Food, drink, and air, may thus directly influence the blood. If this may be effected by easily appreciated causes, who will dare dispute that the blood may be contaminated by others, also, which elude our means of detection? Who can assure us, that caloric, electricity, light, and, above all, a multitude of subtile principles, do not exercise an influence of some kind on this liquid?

Having seen that the composition of the blood may be altered, how much more easy it is to demonstrate, that it may be too abundant, or too rich in materials! Will not scanty evacuations and superabundant nutrition infallibly produce this effect? The inevitable results of an over facile and too rich hematosis are directly characterized by the following, among other, signs:—red and animated face, brilliant eyes, vermillion lips; skin hot, moist, ruddy, and slightly tumified; the veins prominent; strong, frequent, full pulse, the strokes of the heart felt vehemently and sometimes interverted in their natural type; respiration accelerated and painful; oppression, and pains in the intestines, with perverted digestion and high colored urine.

Will not insufficient food, the constrained use of impure water, prolonged night-studies, too long continued mental exertion, painful and immoderate exercise, excesses in the pleasures of love, &c.—produce opposite effects? Pale face, discoloured lips, dull languid eyes, general emaciation, cold skin, debility, slowness of pulse, insensible contractions of the heart, embarassment of respiration occasioned by defect of inspiratory power and of the natural stimulants, scanty urine, profound sense of debility, desire of repose, intellectual and moral incapacity, imperfect sleep, locomotion all but impossible:—do not these constitute the faithful delineation of the effects determined by the latter causes?

It must be admitted, that *our fluids may be primarily diseased.* God forbid that we should wish to revive the darknesses of ancient humoralism! Yet, equally far be from us the intention of denying the existence of a fact, merely because of its eluding our explanations. We should, above all, render homage to truth. Doubtless it is unfortunate, that the alterations of the fluids are yet scarcely known: but is this a reason for rejecting them? Will impugning all researches made on this subject as chimerical, and deterring noble minds from devoting themselves to such irksome investigations, be greatly to contribute to the advancement of the science? It is unquestionably very convenient to say that a thing does not exist, when such thing perplexes us; but, on that account, does it follow that the thing really exists not at all? Far better espouse the still more simple part, of denying the existence of all diseases.[1]

Diseases of the fluids are infinitely more rare than those of the solids. Certain general affections, as hysteria, epilepsy, catalepsy, *plethora*, anæmia, and the majority of disorders characterized by a specialty, belong, we think, to the former. Diseases of the fluids, however, are in a proportion truly trifling, compared with those which attack the tissues of our organs.

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[1] [" It seems now pretty generally admitted, that the influence of the truly vital properties of the Blood, and other animal fluids, on many of the most important changes of the living body, in health and disease, has been until lately very much overlooked. When these vital properties of the fluids are better ascertained, and their importance duly appreciated, there is every reason to believe that the distinction so often drawn in the Schools of Medicine between Solidists and Fluidists will be effectually obliterated by the admission, that most diseases originate in that part of the system (the capillary vessels) where the animal solids and fluids are most intimately blended together, and are continually interchanging particles; and therefore necessarily extend to both."—Preface, p. ix. —but see particularly page 437, of *Outlines of Physiology and Pathology*, by W. Pulteney Alison, Professor of the Institutes of Medicine in the University of Edinburgh.—Edition of 1833.]

This naturally leads to another fundamental proposition of our system:—

Fourth Proposition.—*One and the same affection, only,* [to the exclusion of every other] *cannot exist.*	Quatrième Proposition.—*Il ne peut pas n'exister qu'une seule et même affection.*

Posterity will scarcely credit that in the nineteenth century it was attempted to be maintained that only one and the same disease existed, and that, therefore, there should be but one and the same treatment. This strange proposition would, doubtless, astonish us,—had we not heard affirmed every day, and (for ourselves) for the hundredth time, that plague and apoplexy, small pox and catarrh, epilepsy and tinea, rabies and shingles, *are only slight shades of one identical affection.*[1]

We are far from participating in the opinion just quoted. Mankind we consider to be unfortunately subject to a multitude of different affections. We here limit our objections to a few examples.

It has been said that all the phlegmasies of the skin are only consecutives of gastric *irritation;* and also that specific diseases do not exist. The unfortunate experiments respecting the non-contagion of syphilis, recently tried by some medical students, prove how much they were imbued with these principles. I grant for an instant, that all cutaneous inflammations are consecutives of inflammation of the stomach, in order that I may thereafter demand, why ALL *gastrites* are not followed by ALL *kinds* of phlegmasies of the skin, at once?—Why every "gastrite" is not erysipelas, zona, scarlatina, tinea, small-pox, &c.? I prefer such examples; for they are self-evident. How comes a "gastrite" to occasion an eruption, so extraordinary in regard to its seat, as zona? Why, on another occasion, small-pox; on a third, tinea,—and so on? The existence of a specialty must be admitted. If this be obstinately denied without proof, I may ask how it happens that the "gastrite" developed by cow-pox (or, to express myself in the new language,—by the vaccine lymph) prevents the "gastrite" developed by small-pox, and does not prevent that of the others? Why does an ordinary "gastrite" not exempt from variola; and why does not variola which presents a fresh variolic gastritis, not operate as a preventive of all possible "gastrites"—which *would* be a consummation devoutly to be wished? It is, without doubt, because *something more* than gastritis exists,—or rather, it is that the "gastrite" is nothing but a chimera superadded to the history of the diseases of which we are speaking. Phlegmasies of the skin are phlegmasies of the skin, not gastrites: they may exist together, and separately. And the majority of cutaneous affections, as well as many others, manifest an incontestable specialty.

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[1] [Lest any one should be sceptical, professor Rostan quotes the following words, textually extracted from a recent publication:—"*Les nuances d'altération des viscères, ne peuvent être considérées que comme des traces un peu différentes d'une affection toujours la même, et non pas comme des maladies de diverses natures. A quoi bon la prétention de le distinguer avant de les combattre?*"]

Certes, it were desirable that only one disease existed; but opening our eyes will unfortunately suffice to convince us that Nature has not been less fruitful in the evils to which she has exposed us, than in the benefits which she has dispensed to us with profusion.

These truths, however painful, should be known, because they put us on our guard, and compel us to seek the true remedy for each disease.

Fifth Proposition.—*The powers vary, in all individuals.*	Cinquième Proposition.—*Les forces varient dans tous les individus.*

If there is one circumstance, which more than another should powerfully modify the treatment of diseases, it is the degree of the constitutional energies (or powers) of the sick. To witness the lie given to a truth so palpable, was reserved to our epoch. It is what was required for establishing the necessity of a uniformly similar treatment. The appreciation of the vital powers—the most precious source of the most important therapeutical indications, with singular obstinacy, has been opposed by some.

All are not endowed with the same vigor: there are as many differences, in this respect, as there are individuals. By *force* [power, constitutional vigor,] is to be understood, a favorable development of all the organs; ease, facility, and energy in the execution of all the functions; the flesh firm, the complexion slightly animated, a medium state of plumpness, amplitude of the cavities, the texture of all the viscera healthy and solid: Such are the attributes of power and of health. The predominance of a single organ, or of a single system of organs,—as the locomotive, circulatory, or any other,—does not constitute power. He who is gifted with the precious qualities enumerated, can successfully resist the morbific causes with which we are assailed: he will, with impunity, brave wakefulness, labor, chagrin, the inclemency of the seasons, and excesses of of every kind. Much more violent causes are required to alter his organs. His diseases are much more violent, and the necessary treatment must be much more active than for one differently constituted.

The feeble being experiences difficulty and sluggishness in all his functions. His skin is discolored, the visage pale, the limbs shrunk and fleshless, the muscles flabby and soft, the cavities narrow, the viscera lax and somewhat voluminous, digestion labored; anorexia, sluggish bowels, slow and embarassed respiration, small scarcely appreciable pulse, cold skin, profound fatigue consequent on the slightest exercise: the most trifling causes render such a one diseased. If such a feeble creature languish in misery—if he experience cruel privations and prolonged abstinence—if he be exhausted by excessive evacuations, reiterated hemorrhages, profuse suppurations—would you submit such a person to a treatment similar to that of a robust patient?—Assuredly not. If an unfortunate, debilitated creature, complain of pain at the pit of the stomach, having previously suffered hunger many days, you would surely never apply leeches to his belly, but would administer some restorative food, so as to step between him and certain death.

It will doubtless be objected, that the two extremes whose *tableau* we have just now traced are not two opposite, but merely two different degrees of the same thing; and the inference will be drawn that these states do not require opposite means, but only different degrees of the same mode of treatment.

This objection is but specious. To say that the profoundest darkness and the most fulgent light are merely different degrees of the same thing, and not two opposite things, would be as correct as to pretend that vigor and feebleness are different degrees of identicals. Has any person yet asserted night and day to be only one and the same thing? It would be difficult, we apprehend, to dispute these propositions.

These considerations are of the highest importance in therapeutics, for, otherwise, one would rigorously infer, that a similar disease attacking individuals placed in the two contrary conditions above described, ought to be treated in a totally different manner. I go farther, and submit an equally incontestible principle, namely,—a certain degree of vigor is indispensable to work out the resolution of maladies. Were this degree of energy unnecessary, it would rigorously follow, that resolution ought *always* to be effected, as the patient would never be too feeble. Experience daily demonstrates the falsity of this assertion.

If a given degree of power be necessary, in order that the resolution of maladies occur, it must frequently happen that the patient will be found above this degree, and, therefore, must be reduced: and it will also happen, that he will, occasionally, be below the point, when, of course, he must be invigorated up to the degree required. We care little if this be impugned as BROWNISM; what we advance, we believe to be the exact expression of the truth.

The conditions intermediate between energy and debility, are those most frequently presented [as in the mass of the inhabitants of large towns,] and hence the momentary triumph of all kinds of treatment. The most opposite means do not prevent the recovery of patients. Tonics and debilitants may be eulogized with the same good faith, and produce the same success. The only extreme cases are those where these means might be pernicious if employed in the teeth of contra-indications: for instance, were cinchona prescribed to an athlete, and were leeches to be applied to a worn-out octogenarian. Happily for humanity, such cases are *hors de litige.*

To sum up, we say—That the partisans of ancient doctrines too obstinately sustain traditions encrusted with the rust of centuries: "essential" diseases, those of the vital properties and of the vital principle, and a multitude of pretended Neuroses—are of this nature.

That Reformers—in admitting that there is only one disease of a single nature, and that there is only one organ, or a very limited number of organs, susceptible of alteration, and that there is only one mode of treatment—have fallen into the opposite extreme.

In short,—That the following propositions, alone, ought to form the bases of a natural system of medicine:—

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[1] *Organs in a state of exercise alone, exist in living man.*
Where the organs are healthy, the functions (i. e. *the motions of the organs) are healthy, and in their normal, physiological, state.*
If the organs are altered, their actions are irregular, the functions are in a pathological state, and reciprocally.

[1] *Il n'y a dans l'homme vivant que des organes en exercise:*
Lorsque ces organes sont sains, les fonctions (c'est-à-dire les mouvements de ces organes) sont saines, dans leur état normal, physiologique.
Si les organes sont altérés, leur mouvements sont irréguliers, les fonctions sont dans un état pathologique, et réciproquement.

[2] *All our organs may be primarily diseased, independently of each other, without it being necessary that one of them should be also always previously affected. It may be added, that it is not necessary that it* [or any of them] *become consecutively diseased.*

[2] *Tous nos organes peuvent être primitivement malades, indépendamment les uns des autres, sans qu'il soit nécessaire que l'un d'eux soit toujours préalablement affecté. On peut ajouter qu'il n'est pas plus necessaire qu'il devienne màlade d'une manière consécutive.*

[3] *The fluids, which so much pervade our composition, cannot be exempt from disease. They may be primarily altered, disordered by excess, or by defect, and be perverted in their composition.*

[3] *Les fluides entrant pour beaucoup dans notre composition ne peuvent être exempts de maladie; ils peuvent être primitivement altérés, pécher par excés, par defaut, et être pervertis dans leur composition.*

[4] *It is impossible that there can be but one and the same disease. The affections to which the human race is liable, vary as much in their nature as in their seat.*	[4] *Il est impossible qu'il n'y ait qu'une seule et même maladie. Les affections auxquelles l'espèce humaine est exposée varient autant par leur nature que par leur siége.*
[5] *To accomplish the resolution of maladies, a certain degree of vigor is necessary.*	[5] *Un certain degré de force est nécessaire pour opérer la résolution des maladies.*
[6] *It is impossible that one and the same treatment can suit in all circumstances: it must not only be less or more varied, but occasionally be opposite.*	[6] *Il est impossible qu' un seul et même traitement convienne dans toutes les circonstances; il devra non seulement varier du plus au moins, mais être quelques fois opposé.*

Observation of facts only, can lead to the demonstration of these truths. Facts constitute the fundamental bases of all the sciences. Thanks to the general tendency of the human mind towards the positive, the reveries of philosophers, of metaphysicians, and of medical men, no longer enjoy the privilege of being adopted, although arrayed in the winning garb of eloquence, or shouldered upon the authority of great names. To be received with acknowledgment, systems must be evidently proved by Nature.

Nevertheless, facts are so disfigured by each interpreting Nature in his own way, that they serve as vouchers, alternately, for the most contradictory opinions. How is such a singularity explicable, if not because facts are either inaccurately observed, or are presented in bad faith? We can only discern truth from falsity and error, by learning to interrogate Nature.

We are instructed alone through the medium of the senses. The ancients, who, when not misled by the seductions of their imaginations, observed phenomena with a precision which yet commands our surprise and admiration, placed this imperishable truth on record.—We thoroughly know only what we have seen. Is it not familiarly said of him who gets out of his depth in a subject with which he is unacquainted, that *he speaks as a blind man does of colors?* What idea, in fact, can an unfortunate being have of colors and of the forms of bodies, whose eyes have never been struck by the light? What idea can he have of sounds, who has been born deaf? The poets have described to us the ravishing plains of Thessaly: our imaginations follow them with rapture. Yet, however exact the descriptions may be, we have only an idea of an enchanting plain, or of a delicious stream, formed by the remembrance of sites which we have actually beheld. It is only the inhabitants of the localities, who *know* the Vale of Tempé, and the meandering windings of the Phrygian river.

Is it not still more difficult to acquire a just idea of our organs—of their functions and of their derangements, if such organs and alterations have not been submitted to our senses?

Appreciation of descriptions.—To know a disease, we must have seen and observed it; we must have attentively examined its different stages during life, and its traces after death. Otherwise, we know nothing of it. Far from us be the idea of sustaining so strange a paradox, as that the exact descriptions of authors are worthless, and, consequently, that there was no use in Hippocrates, and his worthy rivals in the career of observation, transmitting to posterity the fruit of their watchings and long experience! But with a view to appreciate these two kinds of instruction at their just value, let us note the difference which exists between the man who says *I have* READ, and him who can say, *I have* SEEN. The former is the man of the closet, acquainted with geography only through the medium of studied descriptions: the latter is the traveller, who has surveyed every country. The one cannot but doubt, the other is certain. The reader is obliged to believe; the traveller judges of the fidelity of the description, which can only be given by him who *has* SEEN. How much better, then, it is to have seen!

A person gifted with a vast memory, may store up in his head immense details as to our organs, their functions and derangements; but he, only, can *know*, who has *seen* and *touched* them. It is the last instanced individual, who can advantageously peruse and appreciate the observations of great masters, fearless of espousing their errors, while profiting by their truths. The very flounderings of men of genius furnish useful lessons to him, who can recognise the stumbling-block over which they have tripped. What an inestimable advantage, is it not, to be able to estimate the illustrious interpreters of Nature!

Good descriptions teach us how to improve ourselves as observers; they rectify our mistakes; they fix our attention upon those objects which escaped us. Consulted in this spirit, they more profoundly imprint upon our memory phenomena which we have witnessed; but they can never supersede observation. Nature—the book which has formed great physicians—must ever be interrogated.

The object of clinical instruction being *to enable us to* SEE *the sick*—or, more correctly, to enable us to *see* DISEASES, its immense utility can never be questioned. The study of clinical medicine is the complement of medical education: it is the application, it is the art of all the branches of the science. As sufficiently indicated by the epithet which it has received, clinical study can be prosecuted only at the bed-side of the sick. *There*, all hypotheses, all abstractions, should evanish before the torch of observation: there, what *is* should alone be seen, not what this or what that author has written. Shame to him who prostitutes Nature to ingenious explanations, or to preconceived notions!

Disposition with which Medicine should be studied. To make progress in the study of medicine, all the faculties which Nature has bestowed upon us, must be employed. The most precious of all—without which a genius for discovery cannot exist, without which we are condemned to incurable mediocrity—is, ATTENTION. In vain will the greatest number of diseases be seen; in vain will a pupil promenade in a Mine the most fruitful in the materials of pathological observation, if at the same time he fails to bestow undivided attention upon the diseases. If to the materials of observation, he does not superadd a greedy curiosity, these valuable objects scarcely act upon his senses; a fugitive impression of them, only, is received, as a mirror evanesces the image of the body without preserving the slightest tangible trace of its ever having been present. Inattention unavoidably leads to inexperience, and inexperience leads to ERROR—the most fatal evil directed against mankind.

But, to avoid errors and to acquire positive knowledge, common-place attention does not suffice. Attention must be vigorous and always uninterrupted. In medicine there are no slight faults: the most trivial interruption of ATTENTION may become the source of the most *grave* evils. Arbiter of the destinies of families—sometimes of empires; ever the depository of those most precious of gifts—health and life, which the slightest fault may destroy—the PHYSICIAN may occasion the greatest evils, as he may be the agent of the greatest of boons. In fact, if the attention is suspended for an instant, the chain of facts and ideas escape; a part only, of what should be comprehended as an entierty, will be understood; and that part, perhaps, contradictory of the whole. Thus an erroneous proposition may be all that is retained of a useful demonstration, a proposition whose application may be fatal.

To give a striking, and unhappily a sufficiently common example, of the danger induced by defective attention:—A patient, the prey to many affections, is confided to your care. His complainings lead you to detect *one* of the number. Satisfied with this knowledge, (your attention being wholly absorbed by it,) you neglect the other viscera. The individual dies. You open the body in the presence of other physicians: you learn, but too late, that an unfortunate father, the sole prop of a numerous family, might, by a more sustained ATTENTION on *your* part, have been snatched from the grave! Tardy repentance is the bitter fruit of such negligence. The pain of humbled self-love also adds to the just chastisement which defect of attention merits.

It would be easy to multiply examples. I trust enough has been said to convince you of the necessity of attention in the study and practice of medicine. If attentive, you may become excellent physicians, or, as was said by the chief of roman orators, in speaking of Asclepiades—benefactors sent by the Gods upon the earth, for the succor of men. If inattentive, you will become their—destroyers![1]

There is yet another indispensable condition for progress being made in the healing art—an ardent and pure love of truth. Every pre-conceived notion, every system, ought to give way to observation, Error, dependent on defective attention, is doubtless a grave fault, but yet pardonable, because emanating from human frailty. Voluntary error is a CRIME. Evil to him who employs his talents to aggrandize illusory hypotheses. Truth, alone, is eternal. Error may reign for the instant, but it disappears at last, leaving only traces and melancholy recollections of the evils which it occasioned. To speak truth is not merely a *duty;* it is also *the greatest* GLORY to which the medical observer can aspire. Upon what basis rests the glory of Hippocrates, of Sydenham, of Morgagni,—but upon the sterling truth of their observations? And if the Sun of their respective merits be not free from some spots, is it not because, with grand truths, they have also transmitted us mighty errors? Observation being the MELTING POT which purifies all doctrines, we should congratulate ourselves in being able to profit by its services. If modern is superior to ancient times, it is assuredly owing to the institution of establishments intended for the reception of suffering indigence. Hospitals are an honor to our age, and to suffering humanity. But their utility is not confined to terminating the sufferings of the afflicted. They are also sources of instruction, at once precious, fruitful, and inexhaustible. It is in them, that, in a circumscribed space, we find all maladies which afflict the human race. It is in them, that precocious experience may be acquired in a short space of time—expedited by the abundant means of instruction. It is in them—at the bedside of the sick—that the pretended oracles which some domineering minds have been pleased to dictate, may be passed through the fire of Moloch.

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[1] [See Dr. Abercrombie's remarks upon the nature and value of ATTENTION, in the last edition of his work *On the Intellectual Powers.*]

But it will be to little purpose that we have multiplied materials of observation before us, if we do not superadd a disposition of mind to our studies, suitable for enabling us to collect the whole of their fruits. A thousand interesting subjects will be presented in vain, if our eyes are blindfolded with the bandage of prejudice. Than that, there cannot be a disposition of mind more opposed to the progress of science. For what purpose seek to manifest the signs of a disease to a prejudiced mind, if the individual be, beforehand, persuaded of their falsity? The *cui bono,* too, is what, of interrogating in his presence the inanimate remains of a fellow-creature? Is it that he may recognise organic alterations? Will he not, in accordance with his disposition, see always as red what is white, or as white what is red? Is not such strange blindness calculated much to retrograde science?

Doubt is the most favorable disposition of mind for advancing with certainty in the path of truth. By doubt, however, we do not mean incredulity. Incredulity is as opposed to the progress of science, as blind confidence. If the latter indiscriminately adopts error and truth, the former repels truth in common with error. Whoever believes every thing unexamined, evidences a timid and lazy ignorance, and condemns himself to nullity in thinking. He who believes nothing, gives proof of presumptuous ignorance, and is condemned to nullity in knowing. Hence upon any fact being submitted to our observation, no matter how extraordinary soever it may seem, let us particularly guard against saying "it is false" prior to having examined it, with the entire force of our senses and intelligence. Nothing announces more rash and ridiculous pride than to reject observations, merely because of their being contrary to our *individual* views. But we should equally guard against adopting facts, however truth-like, without examination.

Doubt is far from being peculiar to ignorance: on the contrary, it is the *partage* of knowledge. To exemplify this:—It is generally agreed to recognise pain in the side of the chest, dulness of sound and absence of the respiratory murmur in the site corresponding to the pain, embarassed respiration, cough, and bloody sputa—as irrefragable signs, pathognomic of a peripneumony: and, as general signs, heat of skin, frequency of pulse, thirst. In such symptoms, no one, in fact, can otherwise than recognise an inflammation of the lungs. Here, however, is what we have seen.—A woman, aged about sixty, complained of pain in the left side and posterior part of the thorax. By percussion, a dull sound was obtained from this part. Respiration was impeded. There was cough, and bloody expectoration. The pulse was hard and quick, the skin, hot;—in a word, the patient presented every sign of inflammation of the lung. After a very attentive examination, no doubt was entertained of the existence of this disease. It nevertheless was no such thing. The patient died, and the opening of the body alone revealed the truth. The left cavity of the chest contained an enormous tumor, formed by a dilitation of the aorta, filled with fibrinous concretions. The texture of the lung was perfectly sound. Upon such a disposition of parts depended the pain of the side, the dull sound, the embarassed respiration, the bloody sputa, &c. This case shows DOUBT to be the result of knowledge. A physician, in fact, acquainted with the signs of peripneumony, *would not have doubted* the existence of that phlegmasy; but a physician who had observed a case similar to that just detailed, would have entertained less certainty: *he* would have doubted. But if doubt—as all good judges are agreed—is the last step by which we consummate our labors, it is equally as remote from the hesitation of ignorance, as it is from the vainglorious tone of half-knowledge, or of pedantry.

But the extreme—the abuse of scepticism, must be avoided. Although the spirit of doubt be the most favorable condition for the study, such a disposition should be guarded against in the practice of medicine. The confidence with which a physician inspires his patient, and the hope which results, favor the resolution of maladies by the happy modifications which they impress upon the organism. Whatever tends to diminish such salutary influence, should be most sedulously avoided. But the public is a sorry philosopher: it confounds, without discernment, the doubt of knowledge, and the hesitation of unskilfulness.

We particularize the abuse of doubt, the rather not to have to reproach ourselves with an omission, than to give advice which we yet deem highly necessary. The spirit of our generation is not inclined to excess in doubt. Whether from indolence in reflecting, or from self-love, it must be confessed that we are inclined to a self-sufficient, domineering tone. We will not always listen to reason. We will not suffer others to examine our opinions; and, above all, we have the great fault of not giving ourselves the trouble to examine those of our opponents or contemporaries. We are full of disdain when any one puts other views in opposition to ours—WE, *only*, have seen the light! WE, *only*, are infallible!

Can any one fancy such a disposition to be very favorable to progress in medicine? Do we not resemble the Egyptians and the Chinese, who, satisfied as to the perfection and superiority of their arts and sciences, refuse to admit those of other nations among them? And are not we, like them, menaced with stagnation in a state of eternal ignorance? Are not the true means by which to discover truth, to never reject any opinion without having attentively examined it; and to adopt nothing, except after mature reflection? Let us preserve the noble liberty which allows the judgment to estimate the most seductive ideas, which, too frequently, are but the offspring of a phrenzied imagination. Let us, however, avoid presuming so far upon the correctness of our judgment, as, having advanced an opinion, to make it become impossible to retract it. It is very frequently this misplaced self-love, which prevents us recanting erroneous opinions that we have promulged, and which constrains us to advance others still more absurd, to sustain the first. If we have fallen into error, let us nobly avow our mistake, and, impassioned solely with a love for truth, admit that we have misapprehended it. This is one of the finest triumphs of philosophy.

A physician [M. Broussais] whose merit we far from dispute, has frequently afforded remarkable examples of this kind. In 1816 he wrote: "The obscure phlogosis of the mucous membrane of the stomach and bowels has, nevertheless, struck many modern observers in the study of pathological anatomy. I particularly allude to M. Prost, who, in his three works, 1°, *La médecine éclairée par l'observation et l'ouverture des corps:* 2°, *Coup d'œil sur la folie:* 3°, *Essai sur la sensibilité,* has studied to prove that irritation of this membrane may for long exist without local pain, that it occasions a disturbance of the animal functions and a number of lesions ordinarily attributed to a totally different cause. This has appeared to him to be so frequent, that he has not hesitated to exclusively attribute intermittent fevers—the whole of the ataxiæ without exception—and even mania, to the suffering of the gastro-intestinal mucous membrane.

I have too frequently found (continues M. Broussais) this membrane in a sound condition *à la suite des typhus les plus malins.* I have too frequently seen a very great number bettered by the employment of the most energetic stimulants, to agree with this physician's opinion as to the cause of ataxic fever. The causes of mania are too numerous, and the mode of action of those of intermittent fever, so little known, that no practitioner can adopt M. Prost's hypothesis of these maladies."[1]

In these words we are pained to recognise the author of the *Chronic Phlegmasies,* and of the *Examen des doctrines médicales.* Although, be it observed, he has "frequently seen the gastro-intestinal mucous membrane in a healthy condition *at the* TERMINATION *of the most malignant typhus,* and these maladies ameliorated under the use of the most energetic stimulants"—he has had the heroism to unrestrictedly adopt the theory of M. Prost. In fact, in his first Course, and in his first *Examen,* he affirmed that the febrile state always depends upon primary or secondary irritation of the gastro-intestinal mucous membrane. Subsequently, however, having occasion to see persons affected with phthisis digesting perfectly well, although habitually in intense fever, and that no redness of stomach was detected after death,—the same author has sagely confessed that pulmonary, independent of stomachic, irritation, could of itself produce fever. Having also seen cerebral diseases provoking fever, without irritation of the stomach being demonstrated by dissection, the same author forthwith asserted the "gastrite" had—*disappeared!* More recently he has had the nobleness to avow that cerebral irritation may give rise to fever without the intervention of the stomach. Moreover: in the first impression of his *Examen,* cinchona, camphor, and other excitants, are pointed out as incendiary and murderous substances, and those employing them uniformly as assassins. But in the last *Examen,* returning to the chronic phlegmasia doctrine, we find a host of maladies demanding tonic and stimulating treatment, and to be cured only by such. Herein we recognise the conduct of a mind above the weaknesses of self-love, and which, by concession after concession, will doubtless terminate by attaining the truth. From his example let us shun culpable and dangerous obstinacy. Some epigrammatic wags, it is true, observing the same writer, in his recent work, rejecting the utility of autopsies and of diagnosis—have thought truly, that it was because these two basis of certainty in medicine so frequently give the lie to the so-styled "doctrine physiologique!" Were we to refer to numerous dissections conducted and published by us, it is incontestable that these reproaches would, indeed, not be unfounded. Be this as it may, it is certain that truth would spring forth from the struggle, if each brought to his researches the same facility in abandoning error, as the physician from whose multiplied retractions we have made our quotations.

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[1] *Phlegmasies Chroniques, douzième édit., t.* II. *p.* 7.

It is very unjust, that these retractions, to some, have appeared to betray a want of solidity in the manner of seeing and perceiving. Is it not better to only discern in such conduct, that sagacity and frankness with which M. Broussais has flung himself into the path of reason, and from which, it would seem, that he strayed? Although, too, each of his opinions were sustained with the firmest assurance, as an incontestable truth, well-intentioned persons will not hesitate an instant in herein recognising the triumph of philosophical doubt.

Is not this the love of truth—this readiness to abjure error—this plasticity of mind, which we demand, and are delighted to obtain? We have submitted proofs. We recognise with pleasure the happy modifications impressed upon medicine by the professor of the *Val-de-Grâce;* and we have frankly specified what we believe to be contrary to truth.

The object of Medicine.—We have thus far confined ourselves to an exposition of the fundamental propositions of our medical system: we have expatiated upon the mode of acquiring solid instruction; and chiefly upon the spirit in which the investigation of truth should be prosecuted. This, however, is not enough. To know, is much: to be useful, is still more. Every science, in fact, which has not the benefit of mankind for its object, merits little of the philosopher's interest; and if this utility is taken as the basis of the hierarchy of the sciences, the first rank indubitably belongs to MEDICINE. Even *its* object would be but one of a sterile curiosity, if it were restricted to disclosing the state of physiology and of disease, and if it did not at the same time teach the means for preserving health, and for re-establishing it when impaired. HYGIENE fulfils the former, and THERAPEUTICS the latter, of these two objects.

Rational treatment, according to professor Rostan, is composed of two essentially distinct parts:—

1°. *Knowledge of the* INDICATIONS *required to be fulfilled.* 2°. *Knowledge of the means which Nature has provided for fulfilling them.*

Of a subject so deserving of undivided attention, the following is a rapid *coup d'œil.*

THERAPEUTICAL INDICATIONS.

Nature, whose productions are infinitely varied, has distributed good and evil upon the earth with equal prodigality. The vegetables with which the globe is clothed, are as different in their forms as in their qualities. Some are salutary aliments: others are deadly poisons. This diversity extends to brutes; and even to the human species.

Mankind is so varied, that it may be said no two individuals are circumstanced exactly alike. Vigor, stature, constitution, age, sex, idiosyncrasy—all vary in man. What are these but the individual circumstances which impress the most important modifications on the treatment of disease. It is absurd to think of treating a decripit individual as one would an infant in the cradle; or a Hercules, as a feeble and debilitated subject. Were all patients of the same age, strength, constitution, &c. we should have only one indication to fulfil, and similar means would suit all.

But matters are otherwise. Independently of these individual circumstances, there are others which depend upon *diseases themselves,* and which furnish more important modifications of treatment. For instance, the seat and nature of the disease—its causes, march, and duration, should infinitely vary the manner of treatment.

Diagnosis considered as the basis of all rational treatment.—Can the diagnosis of maladies be of use in their treatment? It is scarcely possible to conceive a time when such a question could be seriously agitated. To adduce arguments in support of an affirmative reply would be superfluous.[1]

The first of all necessary conditions to suitably combat a disease, is—to know it. All rational medicine is based on diagnosis: it cannot be otherwise. The most fatal errors are those of diagnosis: they occasion the greatest number of victims. For example, how great the danger in mistaking a strangulated hernia for a simple inflammation of the intestines, or of the peritoneum! and reciprocally, namely, to mistake simple inflammation of these organs for strangulated hernia. In the former case, the patient is allowed to die without the chance of an operation being afforded him: in the latter, the patient is killed by the evil of a useless operation being added to an already severe existing disease. Such things have actually happened.

Does not the whole of therapeutics consist in the knowledge of diseases? The most able physician is not he who gives the most medicines, but he who administers them with the greatest sagacity—whose diagnosis, in short, is the most correct.

The causes of disease considered as therapeutical indications.—After the diagnosis of diseases, the knowledge of the causes producing them furnishes a multitude of important indications. It has been advanced in too general a manner, that, a disease once produced, it matters little what has occasioned it; and, that it must be treated without considering its cause. Experience daily contradicts this assertion. Do we not employ remedies in vain against a cause which has not ceased to act? In treating a disease, the first thing is, if possible, to remove the cause which has produced it. When an unfortunate is brought to the verge of the grave by some moral distress, what can "simples" effect, if we do not commence by removing the cause? What would all the drugs of the pharmacopœia avail, against the love of Antiochus or of Perdiccas? Would the administration of emetics or excitants, or the application of leeches *to the pit of the stomach,* be necessary, or of service? Certainly not: the true cure would be—*Stratonica,* in the one case, and *Phila,* in the other.[1]

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[1] [To seriously argue upon such a question would be tantamount to asserting that "only one and the same affection exists;" and, consequently, that there should, because there could alone be one and the same treatment.

To affirm that a whale and a humming-bird, a man and a mushroom, a cedar of Lebanon and a moss—are the same beings, *because* their elements are similar, would be equally as satisfactory and tenable, as the assertion, that plague and apoplexy, small-pox and catarrh, epilepsy and scald-head, hydrophobia and shingles, *are* only different shades of an identical affection.]

When individuals are pent up in confined dungeons, or in gorged hospitals, they are struck with typhus. Restore them to liberty—make the atmospherical air to freely circulate in their dwellings, and the effects will cease. If you live in the unhealthful confines of the Pontine marshes, you will be a prey to rebellious intermittents. In vain will enormous doses of quinine be taken: the disease persists, because incessantly reproduced by its cause. Abandon these infected localities, and the fever will disappear. The existence of the artisan who is exposed to metallic emanations, and who therefore suffers atrocious colics, is compromised, unless he changes his profession.

What is here said applies to all predisposing, and to a multitude of specific, causes. Authors must mean *occasional* CAUSES, when asserting that attention to etiology is of insignificant importance.

The nature of diseases considered as therapeutical indications.—Specific modes of treatment must be recognised. Deceitful hopes of there being a universal malady, and a panacea, must be renounced. We have shewn that all diseases are not of the same nature; that the majority of phlegmasies have in them something specific. We have also shown that all diseases are not *irritations;* that the fluids may be altered in many ways; that the blood may be greater in quantity, richer, more reparative, more plastic than ordinary—constituting the state of PLETHORA; and that the blood may be deficient in amount, or altered in its composition, as it is admitted to be, by the whole world, in scurvy. We added that if the blood offers such different modifications, it is in no way repugnant to admit the same as to the composition of the other fluids entering into the composition of the animal economy. Independently of these alterations it is certain that many morbid alterations are not the results of irritation. It is doubtful if nervous diseases in general, such as epilepsy, hysteria, catalepsy, St. Vitus's dance, be inflammations. It is more than doubtful if syncope and asphyxia be inflammations. The same may be said of a multitude of physiological alterations. The ossification of organs, and principally of vessels, is never the result of irritation—it is the inevitable effect of advanced life. It might just as well be affirmed, that digestion, nutrition, and growth, are the results of irritation, as to say that the organic deposit of the phosphate of lime is the product of irritation. Gangrena senilis is no more a phenomenon of irritation than hypertrophy or atrophy, and various other affections.

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[1] [See, also, Dr. Goldsmith's exquisite tale—*Alcander and Septimius.*

As many diseases are not irritations, the corollary is, that the treatment ought to vary in accordance with the diversity of their nature.

The March and Duration of Diseases considered as Therapeutical Indications. By the march or progress of a disease is meant, the mode in which the phenomena constituting a disease succeed each other: and by their duration, the space comprised between their *debut* and termination. The *continued, remittent,* or *intermittent* type, constitutes one of the principal differences in the progress of states of pathology, and requires the employment of different curative means. Whatever be the opinion adopted as to the essence of maladies, there can be but one mode of treating such as are intermittent—a mode sufficiently different from that adapted for those of a continued or remittent nature.

Therapeutical modifications of the greatest interest, are determined by the fact of the progress of a disease being acute, or chronic. No one would advisedly treat acute and chronic affections in the same manner. The phenomena of the latter, while seldom intense, may continue for an unlimited period: whereas, those characteristic of the former are violent: they succeed each other with fearful rapidity, and threaten speedy death to the afflicted.

What has been said of the progress, applies directly to the duration of diseases.

The treatment also varies, according to the epoch of the malady. Treatment appropriate for the commencement, may no longer suit the development or acme, and still less the decline, of a disease. Hippocrates wished no one, in acute diseases, to be blooded after the seventh day. Subsequent experience has, indeed, shown the unfounded nature of Hippocrates' fears; yet it admits not of a doubt, that sanguineous emissions, during the early days of acute affections, are infinitely more efficacious than those practised at a later period. Diseases have vanished as by enchantment, after an early venesection; whereas, bloodlettings, instituted late in their progress, have proved not only useless, but fatal.

The Vital Powers considered as Therapeutical Indications. It is unnecessary to repeat what has been said at page 150, as regards the different constitutional vigor of individuals. Every observing practitioner must be convinced that real and false debility, respectively, exist as unquestionably, as real and apparent vigor; that there are indicative signs of these states—that a certain degree of energy is necessary to effect the resolution of diseases—that medical ability consists in not confounding these circumstances, and in varying the treatment agreeably to their exigencies.

Ages considered as Therapeutical Indications.—What has been said respecting vigor, will, with slight modifications, equally apply to age.

Very profound acquaintance with the organism is not necessary, in order to be struck with the differences induced upon individuals by age. The most superficial observers recognise the different ages by the traces imprinted by time on the exterior habitude of the body.[1]

In these outward traits, the more attentive physician perceives the signs of important visceral changes—changes which render the organs prone to contract particular affections, and which indicate suitable modes of treatment. Indeed (as has already been remarked) no one would treat a decrepit old man, or a cradled infant, as he would an adult in the heyday of youth.

Infancy.—In the feeble state in which human existence begins, the establishment of the new mode of the circulation [at birth] occasions cerebral congestions and frequent apoplexies. The accumulation of mucosities in the aërial passages—at this period so narrow—produce fatal asphyxies. The jaundice of infants is explained by the new functions of the liver. The new mode of alimentation—the tender state of the digestive tube—account for the frequency of intestinal irritation. The action of the air on the skin and aërial avenues, determines phlegmasies of these organs.

The development of the nervous system of infants, renders them liable to inflammations of the brain and its dependences, to epilepsy, and to convulsions. The activity of the cutaneous system predisposes children to various eruptive maladies.

Youth.—The predominance of the respiratory system in youth, explains the frequency of hæmoptysis, pleurisy, peripneumony, phthisis, &c.

Adolescence.—The adult period of life, when all of the organs are duly equilibrated, is predisposed to no complaint: it resists all morbific causes alike, and seems equally affected by them all. Abdominal affections, however, are observed to be more common.

Senescence.—When the organization begins to be deteriorated by the progress of years, a new series of phenomena, the source of new affections—is markedly developed. The alteration of the nervous system, which is more obtuse and less developed during senescence than during the other epochs of life, explains the frequency of amaurosis and senile deafness; tremblings; incontinence, or retention, of urine; and mental imbecility. The accumulation of phosphate of lime throughout the circulatory system, originates a multitude of affections admitting of mathematical explanation. The blood, not being propelled into the aorta, stagnates in the left ventricle, in the auricle of the same side, and in the lungs, where it causes embarassed respiration, and consecutive hæmoptysis: inflammations are induced, and injection of the bronchi, with increase of their exhalation, are the necessary sequels of this new organic disposition. The right cavities of the heart, not being able to disembogue their contents into the lungs, the blood stagnates in the permeable tissues, and ultimately gives rise to thoracic and abdominal phlegmasies of every kind. Should these mechanical inflammations be treated like the rampant phlegmasies of youth? Certainly not: they require a treatment altogether different.

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[1] [From a botanical association, *wrinkles* and other indications of "experience," are expressively termed "*time-stains*" by one of our british poets.]

Without farther extending the inquiry respecting the changes induced in the texture of our organs by the wear and tear of years, it is easy for us to conclude, that, with new dispositions to different maladies, new therapeutical indications are necessarily induced.

The Constitution considered as affording Therapeutical Indications.—Perfect equilibrium rarely reigns throughout all the systems of the animal economy. Some system, almost always, seems to predominate over the others, and to sway them in dependence. In some, the circulatory and respiratory systems greatly preponderate. In others, the digestive system appears to monopolise all the energies of the organism. The development of the apparatus of innervation characterizes a third; while the predominance of the locomotive system is the appanage of a fourth. It is easy to conceive that these organic dispositions induce different disorders, and impress similar diseases with modifications which ought to influence the mode of treatment. Those characterized by energy of the systems of circulation and respiration, are predisposed to the most violent and acute inflammations, which will be successfully combated by profuse and copious blood-lettings. These means are less necessary in the case of an individual whose digestive apparatus is in a state of hyper-activity: abstinence, diluents and laxatives, favor the resolution of the maladies of such a patient. The athlete requires a particular treatment—one quite opposite to that which is suitable for him whose organism languishes in a fatal state of atony.

Sex considered as a Therapeutical Indication.—Difference of sex furnishes equally numerous indications. To speak only of women, their diseases have appeared to be so numerous that they have hatched very voluminous special treatises. Three epochs particularly demand the physician's attention:—1. The establishment of the Menstrual Secretion; 2. Pregnancy, Parturition, and its consequences; 3. The discontinuance of the Catamenia.[1] In each of these circumstances, the female requires sedulous care. By ignorance or carelessness, the most serious consequences may be induced.

The plethora established at the epoch of female puberty, occasions cerebral and thoracic congestions: hence, vertigo, flashes of fire before the eyes, ringing in the ears, head-aches, bloated face, "heat spots," feelings of impending suffocation, supplementary hemorrhages, visceral inflammations, leucorrhœa, pica, &c. At the disappearance of the catamenia, analogous results occur, and require nearly the same treatment—modified, merely, according to the age. Amenorrhœa, and painful and difficult menstruation, furnish important indications: woe to him who mistakes them! The state of pregnancy is no less fruitful in therapeutical indications:—inflammations of the womb and peritoneum, uterine hemorrhage, and the sequels of parturition, require particular management.

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[1] [The "dodging days"—the grand climacteric of the female constitution.]

We omit the enumeration of the different diseases of women, persuaded that enough has been said to show, that in the majority of cases, they should not be treated like those of the other sex.

Habit and Idiosyncrasy considered as Therapeutical Indications.—The influence exercised by habit on the animal economy, has, in all ages, attracted the attention of physicians. Its power is such, as to necessitate an entire change in the mode of treating diseases. Those accustomed to drink many bottles of wine with brandy daily, when affected with violent inflammations have continued to take large doses of brandy and some bottles of wine, and under such diet, (very severe, to them,) have recovered. During the deplorable events of 1814, Tartars [caught in Paris] were successfully *treated* in this manner; whereas, those from whom the stimulus was withheld, perished.

Individual idiosyncrasies, tastes and antipathies, and what the world calls "temperament," should be most carefully studied. They may unfold a mass of indications useful for the patient, and, when sagaciously availed of, they redound the greatest credit to the physician.

Such are the chief circumstances which ought to vary the treatment of diseases. It is the knowledge—it is the exact appreciation of them, which constitutes the true physician. He alone is worthy of the name—he only can aspire to rescue his patient from the confines of the tomb, who bases his prescriptions upon the data here cursorily exposed. The physician who, from unskilfulness or speculation, prescribes medicines on the miserable chances of hazard, is nothing but a despicable quack. Vainly will he found upon the success which a pseudo-"experience" has afforded to him. Success should be tested by being reasoned upon.

Every thing should be cited before the tribunal of REASON. It is high time that her torch should enlighten us. Why should she be exiled from MEDICINE, which ought to be the most philosophical—that is to say, THE MOST RATIONAL OF THE SCIENCES?

The means which we possess for fulfilling Therapeutical Indications. Had nature not possessed us with a multitude of means, suited to combat the diseases of patients, to attentively observe them under the different relations pointed out, would be but a painful and irksome task, equivalent in fact, to condemning us to remain useless spectators of the destruction of our fellow creatures. Happily it is otherwise. We possess numerous means, accredited by reason and sound experience, capable, in a great many instances, of restoring health. Knowledge of these means constitutes MATERIA MEDICA, properly so called.

No human science has been, and yet continues to be, infected with so many prejudices as Materia Medica. Each title, under which the medicaments are classed,—each formula is an error. Struck with the imperfections, many have ventured to deny the utility—nay the existence, even, of Materia Medica. To be convinced of the falsity of such assertions, it suffices to bear in mind:

[1] *That diseases, and* therefore *causes of diseases exist.*	[1] *Qu'il existe des maladies,—par conséquent, des causes des maladies.*
[2] *That diseases terminate favorably, or unfavorably ; and,* consequently, *that causes exist which favor the one, or which favor the other, of these terminations : hence, it is matter of inference, that it is necessary that the patient, if to be cured, should be submitted to, or should be withdrawn from, such influences.*	[2] *Que ces maladies se terminent bien, ou, qu'elles se terminent mal ; par conséquent, qu'il existe des causes qui favorisent l'une ou l'autre terminaison ; d'òu l'on conclura qu'il faudra soumettre ou soustraire le malade à ces influences, pour le guérir.*
[3] *That if substances exist whose well-known actions modify our organism in a determinate manner, such modifications may, in certain cases, be useful—as experience and reason prove to demonstration.*	[3] *Que s'il existe des substances, dont l'action bien connue modifie notre organisme d'une certaine façon, ces modifications peuvent être utiles dans certains cas ; ce que l'expérience et la raison prouvent à l'envi.*

Let us rapidly pass, in review, the most interesting and useful points of Materia Medica.

Abstinence. Among the means which we possess, what is improperly styled *la diète,* [by which the French mean —abstinence from alimentary substances,] may unhesitatingly be placed in the first rank. Its action admits of the most satisfactory explanation. Abstinence singularly favors interstitial absorption, and thereby the resolution of diseases confided to this function. It favors absorption, because, while decomposition proceeds, there is no recomposition. Farther, it prevents fresh nutritive pabulum being added to the mass of the blood, and thence, new elements of nutrition—*i. e.* irritation and engorgement—being carried to the affected organs.

Local and general bloodlettings still more promptly effect the same object. Direct experience proves, that the activity of absorption is thereby redoubled. These modifiers of the organism are still more useful, when, as in the majority of phlegmasies, the strength of the patient requires to be reduced to the degree necessary for the disease resolving. The action of aqueous, gummy, mucilaginous, and acidulous drinks, wonderfully aids the effect of the former means. When the alimentary canal is the seat of inflammation, irritation is directly diminished by these liquids coming into immediate contact with the diseased surface. When disease occupies a more inaccessible organ, these drinks introduced into the current of the blood, really and rigorously diminish the consistence of that fluid: they render it it less nutritive and less irritant: they *dilute* it, in the fullest sense of the term.

The art of varying and proportioning these means to the intensity of the disease, to the strength of the patient, and to other indications, constitutes one of the most difficult and extended departments of medicine.

If, from antiphlogistics or debilitants, we pass to another series of therapeutical means, we find others possessing an incontestably different action—medicines, namely, which act by augmenting the energies, movements, and general tone of the system. Their effects are either durable or transient—a difference which serves to distinguish *tonics* from *excitants*. The former contain a bitter, without any volatile principle; the latter are alcoholics, or contain essential oils—a very numerous class. The physiological effects of these substances are known and unexceptionable; but, unlike antiphlogistics, they do not admit of a rigorous explanation. They are invaluable, when the sufferer requires to be re-invigorated to the point required for the resolution of the malady.

The title "Astringents" is essentially vicious, because it involves the belief that there are substances capable of contracting our tissues, *whatever be the condition* of the organs at fault. There are substances, however, containing, in general, gallic acid and tannin, which, in certain circumstances, may *contract* our tissues.

Many natural substances indisputably possess a special "virtue." It is impossible to question the power of emetics. Carried into the blood, or into the stomach, they cause vomiting by a specific action. They act directly upon the brain. As for proof: take an animal whose stomach has been removed, but into whose veins an emetic has been injected.—What is the consequence? The animal executes all the efforts necessary to produce vomiting.

The same may be said of purgatives, whose power is recognised every day.

Certain substances more particularly promote the cutaneous exhalation; others, the urinary and the pulmonary secretions. Some medicines act upon the uterine circulation; others specially influence the brain; and there are agents which stupify, narcotize, or which excite, the innervation.

There are truly specific means, as cinchona, mercury, vaccine lymph. Lastly, we possess vesicants, rubefacients, and revulsives, whose actions are of the greatest utility. To enter into detail upon this subject would here be out of place. What is said suffices to convey the consolatory idea, that we possess more means than are necessary, for fulfilling the numerous indications which we have exposed. *The physician fails much more frequently to the Materia Medica, than the Materia Medica fails to the physician.* It much more frequently happens that the physician incorrectly discriminates *what should be done,* than that means fail him for fulfilling correctly appreciated indications.

Such are the prominent principles constituting the philosophy of professor Léon Rostan's admired Course of Bedside Medicine, as delivered in Paris during a series of years.

The remarks with which this able clinical instructor brings his Prolegomena to a close, having been submitted in the preface to this volume, it is deemed unnecessary to here recapitulate them. With this passing allusion, the student's attention is requested to the following discourse, *Sur la Force Vitale Médicatrice,* pronounced in the amphitheatre of the Hospital of Charity, Paris, by the estimable Cayol.

SECTION V.

EXPOSITION OF THE MEDICAL CREED OF M. J. B. CAYOL.

ON THE VITAL MEDICATRICIAL FORCE.[1]

Non minor est virtus quam quærere parta tueri.

Before commencing the examination of patients which will be the subject of our clinical exercises, I regard it as a duty to lay down some principles, and to present some general considerations, calculated to acquaint you with the spirit in which this branch of instruction will be conducted.

MAN, considered as the subject of MEDICINE, is an organized being, that is to say, is composed of organs or instruments which fulfil different functions, of which the object of some is the preservation of the individual, and of others, the continuation of the species. The normal or regular exercise of these functions constitutes HEALTH. Every derangement in the organs, or in their action, constitutes what is styled DISEASE. Anatomy and Physiology, which have occupied the earlier years of your medical studies, have acquainted you with the structure of the organs, and the natural play of the functions. I here call your attention to this, merely to take notice of a general fact, to us of the highest importance—of a fact which governs all medicine. I allude to the *property* which every organized body possesses, of providing for its own conservation, of opposing an active resistance to all destructive agents, and, of incessantly repairing its losses. It is assuredly this property which constitutes the most essential characteristic of organization, and above all of the *animal* organization; for we would here abstract from *plants*, which occupy a middle ground in the chain of being, and form a sort of transition link between living organized beings, and inert or inorganic matter. The study of physiology has shown you a constant opposition—a never-ending struggle between the *vital powers,* or the laws which govern living bodies, and the *non*-vital powers, or the laws which govern inorganic matter.

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[1] Discours sur *la Force Vitale Médicatrice*, prononcé dans l'Amphithéatre de l'Hôpital de la Charité, à l'ouverture du cours de clinique, par J. B. CAYOL, ancien professeur de Clinque Médicale, à la Faculté de Médicine de Paris.

Life—to consider only its material phenomena—alone consists in this struggle of the vital power—that is to say, of the endowment or force peculiar to organized living bodies—against the laws of gravitation and affinity. While the equilibrium is maintained between these two opposite forces, the elements which constitute us remain united; and, when the power of vital resistance is ultimately exhausted, the elements are seen to be disunited and dispersed in obedience to the laws of chemical affinity, forming different combinations wholly foreign to the organization. It was from these considerations, that Bichat was led to define LIFE—*the aggregate of the functions which resist Death*: a definition which has been justly contested, but which, nevertheless, is the expression of an indisputable fact.

Independently of this incessant struggle or reaction of the vital force, which not in the least disturbs the harmony of our functions, because, on the contrary, it is its object and natural result,—other struggles or anormal reactions are provoked by the accidental agents of destruction, which every instant menace our existence. For instance, shocks of different kinds, blows, falls, bodies foreign to the organization which by a superior force have penetrated its substance, and, by their physical or chemical actions upon our organs, disturb the functions—or alter their texture. To these must be added, less or more sudden and violent atmospherical vicissitudes; deleterious principles emanated from the earth, or exhaled from the bodies of other animals, and which are introduced, with the air, into our lungs, or into the digestive organs with the aliment. The catalogue would be incomplete, were we to omit including all the accidental agents of destruction, or, in other terms, all causes of disease—all morbific principles.

Every malady being a derangement of the natural order of the functions, necessarily pre-supposes something which injures; for there cannot be an effect without a cause. Now we have said that active resistance to all the agents of destruction, is a property inherent in the living organized body. This active resistance, or *reaction*, is provoked, then, by whatever is noxious—by all causes of disease, and continues until the cessation of the disease, or until the extinction of life.

Examine all diseases, from the slightest to the most severe, from the simplest scratch up to the most profound alterations which pervert the tissues of the viscera: in all you will see a concurrence, and a suite of conservative efforts, differing according to the nature and periods of the disease, but ever well adapted to the morbific cause to be eliminated, or to the disorders which should be repaired.

Do not suppose, that I speak a metaphorical or figurative language. It is a fact of observation, and of universal experience, which I submit to you; it is a fundamental proposition of Pathology and of Therapeutics; it is a truth at all times recognised, but too frequently forgotton—still more frequently subordinated to systematic prejudices, and which I wish, on the present occasion, to strongly impress upon your minds. This I shall demonstrate by several examples.

A grain of dust has penetrated the duplicature of the conjunctiva, and excited acute pain. The local circulation is immediately accelerated: a greater quantity of blood flows into the conjunctiva and lachrymal gland, and there furnishes the materials for a copious secretion of tears and mucus, until the foreign body is washed out by the gushes of these humors.

What happens, when a foreign body cannot be eliminated,—on account of its being too weighty, too bulky, too adherent, or too deeply situated in the viscera? An accidental tissue is formed around it, constituting a true barrier completely isolating it from the surrounding parts, and placing it so as to be beyond the possibility of being injurious. Take the case of metallic balls which have remained in different parts of the body for years, without causing pains, or functional disturbance. The cyst which envelops the fœtus in extra-uterine pregnancy—and the process by which nature cures sanguineous apoplexy—may likewise be adduced as examples.

If you desire another illustration of the efforts of MEDICATRICIAL NATURE, selected from a totally different order of maladies,—remark what happens when the course of fecal matter is intercepted by the strangulation of a hernia. With what energy does not nature react against the physical power which oppresses her! All the organs combine their efforts, and appear leagued together—each concurring in its own way, to repulse the common enemy. The upper part of the intestinal canal, distended by accumulated fecal matter, and threatened with rupture, becomes strongly contracted upon its contents; and, aided by the diaphragm and abdominal muscles, strives to expel it by the mouth. The whole of the remaining portion of the apparatus of digestion participates in the convulsive agitation which tends to free and reduce the incarcerated portion of the intestine. The contractions of the heart are redoubled; the circulation of the blood is consequently accelerated, and a much greater quantity of this vivifying fluid is distributed to the oppressed organs.

Observe, too, what occurs during inflammations of serous membranes, where the product of the pathological secretion becomes a foreign body, and so much the more noxious, because, from being shut up in an openless sac, it cannot be directly eliminated. By a wonderful concurrence of means, this purulent liquid, gradually modified in its composition, is transformed into a membraniform tissue, which insensibly assumes the characters of the organization, and terminates by being naturalized in the animal economy.

Shall I speak of Fevers, and especially of the exanthematæ, in which we trace, as if step by step, the morbific principle from the moment of its introduction into the living body, up to its elimination by the skin? What disorder is excited in all the functions by the presence of this morbific principle! Acceleration of circulation and respiration; disarranged partial or general movements of the organs of locomotion; oppression, somnolency, delirium, vomitings, involuntary evacuations, &c. All of these disorders cease, as if by enchantment, and return to their natural order, as soon as the eruption is regularly developed upon the skin.[1]

In those severe continued fevers which essentially affect the nervous centres, and which are designated malignant, ataxic, and adynamic, do we not see critical phenomena which present the greatest analogy to those of eruptive fevers?

These examples, with many others which we shall have occasion to remark upon when treating of diseases in particular, attest, to every one who can reflect, an important truth, which has struck the greatest physicians of all ages —which no modern discovery has invalidated, and which perfectly accords with the soundest notions in physiology: it is, that *living* bodies *react* against all causes of disturbance and destruction; that this reaction or active resistance is not confined to the elimination of the *material* cause of disturbance, but, that it also provides for the reparation of disorders: and, that this suite of nature's efforts, truly constitutes maladies. The definition which Stoll has given of Fever,—*Est igitur febris affectio vitæ*

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[1] "In all the Eruptive Fevers (except Erysipelas) it is to be observed as an important part of their Pathology, that experience has proved the inutility and danger of attempting to arrest the course of the specific inflammations of the skin. After they have commenced, whether the body contain in it a morbific poison which should be expelled, or not, it certainly labours under the influence of a cause which is most dangerous when any inflammations that may co-exist with it are abortive; and the unwonted recession of the inflammation, if not a *cause* of injury, is very generally to be dreaded as a *sign* of intense action of the morbific cause on the circulating system, and impending death by asthenia."—Professor Alison on the CONTAGIOUS EXANTHEMATA. *Outlines of Physiology and Pathology, pages* 533-4.

conantis mortem avertere—naturally applies to all maladies, with the exception, however, of physical lesions, in which conservative, and reparative efforts, likewise, certainly exist, although they do not, properly speaking, constitute the malady.

The organism reacts against accidental causes of destruction, by virtue of the same laws, which preside over the maintenance of *life,* which, as was said, is nothing but the continual struggle of the vital force against opposite forces. From this, it rigorously follows, that the vital force necessarily becomes the medicatricial force;—that maladies are accidental functions, and that pathological phenomena are, merely, a consequence and an extension [collectively speaking] of physiological phenomena. I shall do my utmost to render this proposition more and more evident, and I shall show its application at the bedside of the sick.

At present it will suffice, that I have directed your meditations to this medicatricial force of nature, which has excited the admiration of the finest geniuses—which Hippocrates was the first to recognise, and which he has celebrated in so many pages of his immortal writings. Nature, exclaims he, is the true healer of maladies: *Natura morborum medicatrix.* He also says, NATURE IS ALL SUFFICIENT.

Not only must the containers, or solids, and the contents, or liquids be studied in MAN, but above all, the dynamical powers which impart motion—Τὰ ορμῶτα. Whither nature leads she must be followed; and if she is oppressed, she should be relieved. Her effort is pre-eminently necessary in disease; for if she be repugnant, all that the physician can do will be useless.

What grand truths and useful lessons in these sentences of the father of medicine! Eternal truths, independent of all systems—truths, which Galen, Aretæus, Sydenham, Stähl, Boërhaave, Baglivi, Stoll, Corvisart, Pinel, and the greatest observers of every age have emulously proclaimed.

Why should narrow and paltry theories so frequently shut our eyes to the light of these transcendent truths, which should be the PHAROS of true medicine! Where every thing is moved in admirable concert, where every thing is redolent of order, intelligence, sagacity, and foresight,—how see nothing but a blind and gross AUTOMATISM! In these processes of Nature for eliminating all causes of disturbance, and for repairing all disorders, how see only an *irritation*[1]—a sort of indefinable and intangible Proteus, which stalks without reason and without object, which, without ever ceasing to be itself, disappears and is reproduced under all forms, at once the most singular and the most dissimilar—and whose blows resound from one organ to another, as sounds are seemingly repeated by an echo!

Far from me be the thought of personifying this medicatricial force,—of self-complacently describing, or rather of divining, its most secret operations, and of reviving the reveries of the brilliant but disordered imagination of Van-Helmont.[2] I have no such wish. I would attach myself to facts alone; and those which result from the foregoing considerations are equally certain, and unquestionably much more useful, than such as we have laboriously and sometimes too minutely collected, as to the local phenomena of maladies. Upon this latter topic, which, at present, I only hint at, I shall, oftener than once, have occasion to explain myself.

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[1] [This is one of M. Broussais's stereotype expressions—c'est une *irritation*, Messieurs; c'est une IRRITATION!]

[2] [The hottest objector to "Nature," "Vitality," or any of the attributes, actions, powers, or functions, in organized bodies, being *personified*,—is M. Broussais. It is, however, by no means strange to find, that so frequent and so every way unnecessary, are the recurrences of the *prosopopœia* in the medical law-giver's own writings, that the attention of superficial readers cannot otherwise than be arrested by them. The able american translators of the physician of the *Val de Grace's* work on the *Chronic Phlegmisies*, have a note upon the reiterated and unillustrative inflictions of Broussais's *personifications*.

Does not the general tendency to use figurative language, when speculating upon ultimate facts, and abstruse and final causes, in physiology and pathology, of itself, speak volumes?]

It is certain that every malady presents to us a series of the phenomena of reaction—or of efforts of the organism which tend to repel the evil, and to work a cure;—that these efforts vary and are differently combined according to circumstances;—that they often suffice to effect a cure, without any aid of art;—that on other occasions they are inadequate, or are frequently seen to become fatal by their very excess. It may be affirmed that there is not a disease for which Nature has not less or more efficacious, less or more salutary, processes of cure—processes which the physician should know, in order to imitate them in certain cases, and to respect them in others.[1]

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[1] *Vis Medicatrix Naturæ.* "There is one view of symptoms in general, which especially belongs to the general subject of disease; namely, their frequent indication of that power in the system, to which has been given the appellation of a *vis medicatrix naturæ.* This curative power or property, although the idea of it may have been pushed needlessly far, and rendered somewhat too material, is an undoubted existing property of the living animal body.

The truth is, that we have daily proofs of there being a power in the constitution to repair injuries, and restore lost parts; and that several actions, which we call disease, are instituted to get rid of the causes producing them. Nor is there any necessary extravagance in the supposition, that the possible intention of all may be so. The law may, perhaps, be said to be analogous with, or conformable to, the law of which natural philosophers have gained a knowledge by induction from various phenomena—that all *action* is followed by *reaction*, equal to, but different from, the primary action. ....

....There can be no difficulty in admitting indications of the vis medicatrix naturæ, without referring them to any thing more than an internal sense, which the preservation of existence did not require to be of the same nature as what are called the external senses. It would be hardly necessary to allude to the more material character given to this power, if the physicians who were most disposed to invest it with personal properties and dignity, had not, as a natural consequence, become too scrupulous about opposing it, even to the extent of curing all diseases, by what the French have called *expectation.*

The proper advantage of acknowledging such a power is, that it prevents indiscriminate and officious meddling,—that medicina *perturbatrix,* which incessantly contradicts even the best efforts towards a natural cure. In the modern practice of medicine and surgery, the vis medicatrix naturæ is seldom disregarded; and its suggestions are not followed without discretion. Seeing the intention of its working, it is yet often seen by the practitioner to work in a dangerous manner, and too much by a general rule; sometimes too abruptly, and sometimes after too lingering a manner. The object of art is to adapt the rule to particular instances; and the greatest wisdom of the practitioner is shewn in determining when to wait upon nature, when to rouse her to exertion, when to

This study, it must be confessed, is too neglected in the present day; and I shall consider that I have done something truly useful, if I succeed in recalling your attention to it. To witness the manner in which some practitioners fling themselves (excuse the expression) upon a disease, to tear it away, or, as they themselves say, to *throttle* it, [pour la *juguler*], one would say that they are not acting upon a living organized body, but upon a being completely passive, or upon a commonplace machine, all the parts of which could be made and repaired by them. To see them at work, one would fancy that a "*gastrite*" or a *bronchitis* is a foreign body, which may be wrenched out by main force; whereas, most frequently, local irritation is merely the effect of a cause already eliminated, and which, consequently, would have dissipated itself.

If you wish to practise a truly rational and enlightened medicine, commence by knowing the disease which you have to treat; the organ affected; and, if several organs suffer simultaneously, which has been primarily affected, and what is the nature of the affection. Above all, do not suppose that where you perceive signs of irritation, *there* the seat of the disease, precisely, and always, is; or, that the irritation is itself the disease. This irritation is often the effect merely of a malady, or even a means of cure. Search in the causes of the malady, in its march, in its symptoms, and then in its physical signs, in the means of exploration which have been so perfectionated in our day —for every thing that can characterize it. This done, examine what are the processes of nature for curing the disease; what is the degree of these efforts; and whether there is an excess or a deficiency of reaction? From all

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moderate those exertions, and when to put an absolute stop to them..... Whilst, however, we seriously consider the design of nature in any malady,—whether she is working, and how she is working, and how the machinery will endure the process she has set up;—we should still, having to treat diseases as they occur in *civilized* life, never trust entirely to the vis medicatrix naturæ, except in the case of the most trifling injuries, where a process of very small extent is all that is required for the cure."—*Cyclopædia of Practical Medicine*, article "DISEASE" by Dr. Conolly, pages 616–617, passim.

these data you will judge whether it is necessary to interfere, or to do nothing—an important problem for the medical practitioner, and one which uniformly merits the most serious examination. Especially guard against the itch for "*doing something*," which, to young practitioners, is so natural, and at the same time so injurious to the sick. A desire to render yourself necessary, or to appear so, ought never to influence your conduct. Such a sentiment would be unworthy the noble profession which you are called upon to exercise.

When the necessity for interference is well demonstrated, these questions present themselves:—what are the changes to be brought about in the animal economy, in order to originate circumstances conducive to recovery? —and what are the most suitable means to effect those changes? This study of curative indications, and of the means for fulfilling them, constitutes THERAPEUTICS, or, *the art of treating diseases:* it is MEDICINE properly so called, and should be the special object of a clinical course. I shall devote myself, then, to making you acquainted with the true sources of indications in disease. . . .

But it is not enough to know how diseases may be cured by nature's efforts, alone, or unaided by the succors of our art. It is necessary to know how they prove fatal: this is the complement of the knowledge of maladies; and herein is the true domain of pathological anatomy. Pathological anatomy acquaints us, how the organs are gradually altered or perverted, and how they terminate, by being destroyed under the influence of a morbid cause, and, sometimes, by the sole *efforts* of a too energetic, or over prolonged reaction:—precious knowledge for the prognosis and for the estimation of diseases, and above all, for the just appreciation of the resources of art in particular cases, where, destitute of these lights, we would flatter ourselves with vain and empty hopes! Pathological anatomy very frequently reveals to us the immediate *cause* of DEATH, but never the cause of the *malady*, and still less the CURATIVE INDICATIONS. I here speak only of alterations of texture from any internal cause, and not of physical lesions, nor of alterations of form, or of topography, which belong to surgery.

Yet, do not suppose that I would depreciate pathological anatomy in your eyes, and alienate you from a study, to which we are indebted for so much positive information. To disparage the utility of morbid anatomy—the services which it has rendered, and those which it will yet further render—would come with a bad grace from him, who has had the honor of being the friend and the colaborator of Bayle and of Laennec, of Nysten and of Savary; but all the advantages of this science may be appreciated—we may enlighten ourselves by *all* its lights—without enslaving medicine to its laws, as for too long a period it has been.

Each age, it must be acknowledged, has its errors and its prejudices. The greatest error of ours, as regards the subject under consideration, is the desire to reduce medicine to anatomy, instead of associating anatomy with medicine ; is—to study the operations of *life*, upon the corpse, and to demand from *death* the means of cure. Hence an immensity of researches, and numerous discoveries, upon objects of *detail*, have not exercised upon medicine, properly so called, the salutary influence which they might have wrought. Nay, more: the abuse which has of late years been made of pathological anatomy, by diverting attention from other considerations of an infinitely more exalted order, has truly fettered the progress of therapeutics. Monographs, and even general Treatises on Medicine, *with dissections*, have been executed :—in other words, Anatomy, for nearly twenty years, has been substituted for Medicine. It may be asserted boldly, and without fear of contradiction, that, during that epoch, not a single practical work appeared in France. Wade through the long and minute descriptions of diseases, with which so many books have been manufactured—(the genius of our age is essentially descriptive)—you will not find MAN in his wondrous relations with the external universe. In such productions, you do not see the living body wrestling with the contending agents of disturbance and of destruction, by which its existence is menaced—incessantly opposing an active resistance, and, in the struggle, marshalling its resources, so marvellously adapted to its exigencies. Throughout the whole you will find nothing but the carcass. You will never meet with anything but organic alterations as causes, and symptoms as effects. In short, it would be difficult to name a single work, of any importance, wherein diseases are not exclusively considered under anatomical relations.

It is time to put pathological anatomy in its true place, and no longer to exact from it more than it can afford. This shall constitute one of the principal objects of this course.[1]

To recapitulate.—The object of our exercises shall be the practical knowledge of diseases. We will investigate how they would be cured by the unaided efforts of nature; how they prove fatal, and by what means art comes to nature's assistance, in preventing or retarding their unfavorable results. We would forget that artificial theories exist, or rather, we would speak of such theories only to turn to account the facts which they have disclosed; and, in this respect we will exert ourselves, to render unto Cæsar, the things which are Cæsar's. But in the treatment of diseases, we would never proceed upon hypothetical views—taking for our motto the precept of Stoll, which you see inscribed upon the walls of this amphitheatre

Nunquam aliquid magni facias ex mera hypothesi aut opinione.

Systems in medicine, are idols to which human victims are sacrificed. Let us guard against this fatal idolatry.

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[1] [The ambiguous and erroneous ideas too commonly attached to the epithets, "morbid anatomy," "Pathology," &c.—the one term being frequently applied instead of the other; and again, both being used as if they were synonymous or convertible terms, will be duly noticed in PART IV. of this volume.]

Medicine would be the greatest scourge of civilized society, were it not that sagacious minds have in all ages existed, who, knowing how to place themselves in a true point of view to the medical art, have preserved and transmitted to us, from age to age, an ever increasing thesaurus of sound traditions,—of experimental truths—of those GENERAL PRINCIPLES OF THERAPEUTICS, which are independent of all theory, and which should be the basis of the instruction, as of the practice of medicine.

SECTION VI.

VEGETABLE, BRUTE, AND HUMAN ORGANIZATIONISM.

> Any sect in Philosophy will serve my turn, and honest Sancho Pancha's is as good as any. On his return from an important commission, when asked by his master whether they should mark the day with a ***black*** or with a ***white*** stone, Sancho said "Sir, if you will be ruled by me, with neither; but with ***good brown ochre.***"
>
> Such is the complexion of human life in general.—***Bishop Warburton.***
>
> Affliction, sitting on the sea-shore, traced on the sand a figure which she called a Man, and Jupiter, passing that way, inspired it with life. A contest presently arose for this new creation. Earth claimed the figure, as having furnished the materials; Affliction, as having traced it; Jupiter, as having inspired it. The question was referred to an assembly of the Gods, where it was decided that Man should be the property of Affliction during his life-time—return to Earth when dead—and his spirit to Jupiter, who gave it.—***Dr. Sheridan.***
>
> HE, doubtless, has willed these and other proofs of His omnipotence, in order to convince us of this truth,—that the Creator of the mind could alone have created the matter with which the mind is associated!—***Dr. Prout.***

HAVING, in Sections IV. and V. presented views of the professional creeds of MM. Rostan and Cayol, I now proceed to submit an exposition of a confession of mixed medical faith, not inappropriately, as is conceived, entitled as above—Vegetable, Brute, and Human ORGANIZATIONISM.

As a truly valuable preface to the cursory inquiry about to be entered upon, I shall quote a few didactic passages from a work (referred to, oftener than once, in this volume)—as regards the importance of closely attending to the influence of ambiguous terms, occurring in scientific discussions. Little progress will have been made by the reader, through the abundant quotations considered necessary to be adduced in the course of the present section, without his attention being repeatedly and forcibly struck with the loose and inexact phraseology in which otherwise distinguished writers have couched their ideas, when commenting upon controverted questions in medicine. Physiological problems involving points of the greatest interest, instead of being treated so as to obviate or smooth away such difficulties as are ever, less or more, inseparable from investigations of an intricate nature, have been commented upon in so vague a manner, and in such indeterminate language, as to be literally rendered even more puzzlingly unintelligible, than the naked difficulties themselves, propounded as such. Can it then be wondered at, that so many junior inquirers, from being thus alternately confused and misled, have as is well known, so frequently turned away with feelings of dissatisfaction and disgust, from dwelling upon certain abstruse questions, which, in their bearing, are confessedly the most generally inviting, perhaps, of all, in the vast range of their theoretical studies! The sequel will abundantly show how pertinently these remarks apply to the loose manner in which physiologists have employed, and sought to explain the terms, *life, vitality, vital principle, &c. &c.*

It is hopeless to expect authors and instructors to agree as to the very shades of defined meaning, whether logical, conventional, or etymological, which *ought to be* attached to certain terms, and according to which, they should alone be received and used: *Quot homines tot sententiæ.* Nevertheless it should be understood, as expected from every modern writer, when necessitated to introduce words of ambiguous import into the current of his productions, that the sense or acceptation in which such doubtful epithets are *understood by himself*, should, at the least, be *described*, if they cannot be defined. When technicalities are used, and also when they recur, and particularly in the latter case, they should be carefully employed in the same sense as far as the existing question is concerned. By attending to this suggestion, idle verbal controversies would be avoided. "Definition—the specific for ambiguity is to be employed and demanded, with a view to this principle; it is sufficient on each occasion to define a Term, *as far as regards the question in hand.*" Among many words which are used in more senses than one; and to which, consequently, very unprecise and often contradictory notions are attached by physiologists, may be enumerated—*property* power, *quality* attribute, *element* principle, *theory* hypothesis, *pathology* pathological anatomy, *functional* and *organic*; and, as was said, *vital principle, vitality,* and LIFE. When obliged to use any of these epithets, until they are defined, authors cannot join issue upon any one of the great physiological difficulties, nor can they orally argue with their opponents with anything like logical effect.

Verbal and Real Questions.—"Every question," says Dr. Whately, "that can arise, is in fact a question, whether a certain Predicate is, or is not, applicable to a certain subject, or what Predicate is applicable; and whatever other account may be given by any writer of the matter of debate, will be found ultimately to resolve itself into this. But sometimes the question turns on the meaning and extent of the *terms* employed; sometimes on the *things* signified by them. If it be made to appear, therefore, that the opposite sides of a certain Question may be held by persons not differing in their *opinion of the matter* in hand, then that Question may be pronounced Verbal; as depending on the different senses in which they respectively employ the terms. If, on the contrary, it appears that they employ the terms in the same sense, but still differ as to the application of one of them to the other, then it may be pronounced that the question is Real,—that they differ as to the opinions they hold of the things in Question." (p. 262.) "It is by no means to be supposed that all Verbal Questions are trifling and frivolous. It is often of the highest importance to settle correctly the meaning of a word, either according to ordinary use, or according to the meaning of any particular writer or class of men: but when Verbal Questions are *mistaken* for Real, much confusion of thought and unprofitable wrangling will be generally the result. Nor is it always so easy and simple a task as might at first sight appear, to distinguish them from each other; for several objects, to which one common name is applied, will often have many points of difference, and yet that name may perhaps be applied to them all in the same sense, and may be fairly regarded as the genus they come under, if it appear that they all agree in what is designated by that name, and that the differences between them are in points not essential to the character of the genus. A cow and a horse differ in many respects, but agree in all that is implied by the term "quadruped," which is therefore applicable to both in the same sense. . . . . On the other hand, two or more things may bear the same name, and may also have a resemblance in many points, and may from that resemblance have come to bear the same name, and yet if the circumstance which is essential to each be wanting in the other, the term may be pronounced ambiguous." (p. 264) "It is evidently of much importance to keep in mind the above distinctions, in order to avoid, on the one hand, stigmatizing as verbal controversies, what in reality are not such, merely because the Question turns on the applicability of a certain predicate to a certain subject; or, on the other hand, falling into the opposite error of mistaking words for things, and judging of men's agreement or disagreement in opinion, in every case, merely from their agreement or disagreement in the terms employed." (p. 266).

"Nothing, perhaps, tends more to conceal from men their imperfect conception of the meaning of a term, than the circumstance of their being able fully to comprehend a *process of reasoning*, in which it is involved, without attaching any distinct meaning at all to that Term; as is evident when X Y Z are used to stand for Terms, in a regular Syllogism: thus a man may be *familiarized* with a Term, and never find himself *at a loss* from not comprehending it; from which he will be very likely to infer, that he *does* comprehend it, when, perhaps, he does not, but employs it vaguely and incorrectly; which leads to fallacious reasoning and confusion."—(p. 147.)

"It is worth observing, that the words whose ambiguity is the most frequently overlooked, and is productive of the greatest confusion of thought and fallacy, are among the *commonest,* and are those of whose meaning the generality consider there is the least room to doubt. It is, indeed, from these very circumstances, that the danger arises; words in very common use are both the most liable, from the looseness of ordinary discourse, to slide from one sense into another, and also the least likely to have that ambiguity suspected. *Familiar acquaintance* is perpetually mistaken for *accurate knowledge.* Inaccuracy not unfrequently occurs in the employment of the very phrase, 'such an author uses a word in this or that sense,' or 'means so and so, by this word.' We should not use these expressions (as some have inadvertently done) in reference, necessarily, to the notion which may exist *in the author's* mind, of the *object* in question; of which the notions *conveyed* to *others* by the *word,* may often fall short; nor again should we regard the sense in which they understand him, as necessarily *his* sense (though it is *theirs)* of the word employed, since they may *mistake* his meaning; but we must consider what sense it is likely he expected and intended to convey to those to whom he addressed himself. And a judicious writer will always expect each word to be understood as nearly as the context will allow, in the sense, or in one of the senses, which use has established, except so far as he may have given some different explanation. But there are many who, from various causes, frequently fail of conveying the sense they design." (p. 283.)

Requesting the full force of the student's attention to the foregoing admirable remarks, I proceed to lay before him a sufficiently copious body of opinions, or, to use one of the technical phrases of a learned profession North of the Tweed—to lodge, with him, the CONDESCENDENCES, of various disputants, as to the alleged existence, on the one part, and the alleged non-existence, on the other part, of what is styled *vitality* by some, and by others "vital principle," in living organized bodies.

Making allowance for shades of opinion in matters of medical faith, the corner stone of the creed of Vitalism may be said to consist in the asserted existence of a peculiar *somewhat*, as cautious logicians of old would have said, or a certain something, be its nature what it may, and let disputants call it what they will—which meanwhile, till a better or a worse title creeps into use, is termed *vitality;* and which forms, (according to some,) or which enters secondarily (according to others,) into the formation of, and upon whose agency depends, the manifestations of the behavior, during health and disease, of the organized matter, constituting the fearfully and wonderfully made mechanism of living beings.

Now, this vitality and "vital principle," are ridiculed as nonentities by the Materialists, who contend that there is no more necessity for appealing to the imaginary existence of any such *voces et præterea nihil* to account for the constitution of, or to explain the phenomena evidenced by organized living bodies, than there is for a sane two-legged creature, sound in wind and limb, resorting to the use of a crutch to locomove his body in obedience to his will.

It may be advisable here to remark, that Vitalists and Materialists agree in understanding, by the phrase "*organized* living bodies," certain corporeal combinations, called "structure," consisting of a peculiar arrangement of molecules, areolar tissue, solids and fluids, which continue for a time, under determinate forms of evolution, "by attracting (to use the translated words of baron Cuvier) incessantly from without, and identifying with the matter of their own composition, particles of extraneous substances, and by rendering to the surrounding elements portions of their own."[1]

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[1] [The student should grapple with, and endeavor to master, as far as is possible, the meaning of each technical term as presented to him. It would unnecessarily take up much space to describe or define all of them as they occur in this section. As, however, obscure notions are often attached to *organization*—an epithet of such frequent occurrence, I append the following descriptive extract, symboling forth the ideas ordinarily understood by that term, in addition to what is offered in the text.

Besides the characters which organized living bodies possess in common with

Here it may be permitted me to observe, that I have the greatest desire to lay before the reader, as unbiassedly and as perspicuously as the conflicting spirit of physiological opinions permit, the ideas attached by able writers and honorable opponents to the epithets, life, vitality, vital principle, &c. This shall be attempted: and even should I fail, in the opinion of the critic, to implement these professions, he will nevertheless, I trust, after perusing the passages to be submitted, and reviewing their relation to the prominent points mooted, at all events give credit to the earnestness of my intentions.

Among the questions to be briefly considered after opening the inquiry, will be—Whether LIFE is the result of, or a superaddition to, Organization? and, Whether the

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*in*organic bodies, they have, says professor Béclard, " others which are peculiar to themselves, and which *modify the former.* They have each a peculiar form, which is constantly and generally rounded, the latter circumstance appearing to be dependent upon the fluids which they contain. Their internal form, or their *structure,* in fact, presents a mixture of heterogeneous parts, solid and fluid. The solid parts are named *Organs,* which mean instruments, on account of the actions which they exercise. Their particles are interlaced and interwoven, on which account their arrangement is named *texture.* They are areolar and spongy, or form particular cavities which contain fluids. These parts are in general extensile, or susceptible of elongation, and retractile, or possessed of the faculty of returning upon themselves. When these parts or organs are multiple, as is generally the case, each has its determinate form, its particular texture, and its peculiar situation. The fluids or humours are contained in the solids, and penetrate into all their parts. All the parts, whether solid or fluid, are mutually and necessarily connected, and it is from their union that the organized body results. The solids and the fluids have a similar composition: they contain much water, and some particular combinations or immediate products, and may be almost entirely resolved into gas. Their *matter* has nothing peculiar, but is also found in the inorganic bodies from which it is derived, and is much less distinguished by its nature, than by its arrangement. The idea of its differing *essentially* from brute [inert] matter, is altogether erroneous. Oxygen, hydrogen, carbon, azote in many, and a few earthy substances, constitute the elements.

⁂ *It is this proper form, this structure common to all living bodies, this areolar tissue, containing fluids, more or less abundant, and of the same nature as itself, that is called* ORGANIZATION." See p. 3, ELEMENTS OF GENERAL ANATOMY, by P. Béclard, translated, with Notes and Corrections, by Dr. Knox.

Professor Cayol's brief explanation of *organization,* (see section v. p. 178,) is this :—An organized being is composed of *organs,* or instruments, which fulfil different *functions,* of which the *object* of some is the *preservation* of the INDIVIDUAL, and of others, the *continuation* of the SPECIES.]

entity or nonentity VITALITY is the *cause* of organization; or whether it is the result of, or a superaddition to, Matter, entering into the tangible constitution of Plants, Brutes, and Man?

Biologists have generalized the facts of their particular science, and have referred the actions of the human economy to the finitely considered ultimate agency of the two inherent powers or properties, CONTRACTILITY and SENSIBILITY. Contractility is the essential characteristic of *muscular* fibre. Sensibility is the distinguishing attribute of *nervous* matter. Motion and Feeling are the respective results and evidences of these powers when in action. The actions of the organs, and the functions of the apparatus of organs or systems, are mainly dependent on contractility and sensibility—CIRCULATION and RESPIRATION, for instance: the former the prime maintainer of the entierty of the functions, and to which, as has been said, all are subsidiary. Though Contractility is essentially independent of Nervous Energy, yet Nervous Energy is dependent on the exercise of contractility. This is demonstrated by ceasing Circulation and Respiration, when Innervation (and its *office*, which Hunter happily designated *internuncial*) is suspended or annihilated.

Many physiologists, from time to time, have industriously occupied themselves with inquiries as to the primordial order of the development of the *parts* of organized beings, and have also instituted experiments and observations with a view to determine the subaltern order of their dependence. Upon such recondite researches, it is here unnecessary to dwell; and had it it been otherwise, the Baconian observation should have been borne in mind, as pertinent to a degree in matters *vital;*—"the inquisition by INDUCTION is wonderful hard: the things reported are full of fables, and new experiments can hardly be made but with extreme caution."

Physiologists and pathologists, and all who comprehensively survey the organized human system in action, cannot otherwise than perceive, not the isolated play of each organ, or individual system of organs, but the *conspiratio una* of all the organs directed towards the maintenance of that harmonious Republic of the Functions, of whose CONGRESS the epithet "life" is to be understood as the summary expression.

Death is the antithesis of Life. Between dead and living matter, distinctions have been eagerly looked for. According to many, *spontaneous motion* constitutes a sufficient distinction between inert or *dead* matter, as a stone, and the organized living matter of a plant. The power, conjoined with sensation and consciousness, of moving itself at will, constitutes a sufficiently bold distinction, not only between *in*-organized matter and organized *animal* matter, but also between the organized matter of the latter beings and that of plants, when severally acted upon by appropriate stimuli from without and from within. Yet such modes of expression are not satisfactory to all inquirers: for so complicated a result is existence, that almost every one puts the question to himself, or bores his fellow-student with "What *is* life?" "Tell me what you understand or mean by *life?*" It will be neither time mispent nor attention misemployed, to show forth the attempts of even great minds to grope towards an explanation of what they have meant or understood by "life."

The self-taught Hunter made no pretensions to having divined, much less to having thoroughly comprehended the property of LIFE. Says he—"We only see the necessary steps leading to it." In that admission there are the ingredients of philosophy:—TRUTH, the exercise of disciplined common sense, the absence of self-deception, and of any unnecessary-to-be-characterized-attempt to play off upon the credulity of the weak-minded, through the knack of mystification.

An item in Cullen's creed, as is well known to the many who are familiar with his writings, is the belief in the existence of electricity diffused over the whole of nature. Now it is, says the able clinical professor, "in the *excited* state of this fluid, that I suppose '*life*' to consist; and when it [the electric fluid] is no longer excitable in any degree, we call this a state of *death*."[1]

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[1] [If the above be an instance of illustrating the obscure by the obscure, the charge does not exclusively lie against any author in particular, whose opinions have been committed to the public, upon the subject-matter under consideration.

In a work published so recently as 1831, by the REGIUS PROFESSOR OF SURGERY IN THE UNIVERSITY OF GLASGOW—the following observations are hazarded in the exordium, which is entitled " Preliminary Remarks on Action." It is right to observe, that none of the words or passages are typed in *italics* in the Original alluded to, but the following are, otherwise, textual extracts—even to the very *pointing*, exclusive of the marks and queries between brackets.

After defining Life as the *principle* of preservation, "*for* the moment *it* is lost, destruction begins,"—the author adds:—" Respecting its *nature*, our knowledge is very limited and imperfect. We are taught that *matter itself* is inert, and yet we *everywhere discover* the operation of *some* active power, *enabling it* to continue its *peculiar* mode of existence. *There is no such thing as* dead *matter* [*!*]

....There are *two* [*!*] distinct *principles* in nature, the one *active*, the other *passive*. The one the agent or *principle* of activity, the other the *material* to be acted on. We can form *no* idea of the existence of the *latter*, without the former [!!!], which may *therefore* be looked on as the *very principle of existence*, and is alike essential to the most *insignificant* atom, *if such there be*, and to the *stupendous* masses which roll through space. Of the nature of these *principles* [*!!*] we are ignorant. Whether there be only *one material* substance or element capable of various modifications, or whether there be many *elements essentially* [*!*] different from one another, it is not possible at present to determine. This much, however, we know, that from *only one or two* supposed elements, *many* varied *combinations* [!!!] may be formed in *all* the kingdoms of nature. When *analyzed*, the numerous animals and vegetables are found to differ *very little* from each other in their elementary principles. If we turn to synthesis, we meet with the same fact, for, from the same pabulum, multiform varieties are produced, apparently, by the operation of the active principle connected with the different individuals, and which is itself modified, by the the peculiarity of the organization or texture. The connexion between life and organization *and* the mutual dependance of the one upon the other is [query *are*] too mysterious to be explained. *But* [adds Dr. Burns,] the *fact we* do *know*, that *the one* does *modify the other*, and that a certain structure and *intimate* organization, that of the human body for example, has a *peculiar kind of life*, the existence of which is manifested by special phenomena, and the performance of particular functions, which in their turn serve to preserve the *principle*. *Water* acted on by a vegetable seed, is changed and *re*composed into a *vegetable structure*, daily increasing in size and vigour. Whence does this plant [query "*water?*"] acquire its *increase of vitality* or active principle, which *must* be greater in the full grown tree than in the embryo?"

Though I admit my inability to comprehend the meaning of the following sentences, intended as solutions, I presume, of the foregoing problem, yet such would be no justification for withholding them from the appreciation of the intelligent reader, who may be able to fully and readily approfound them. "Is it not by

The anonymous author of the four numbers in the Library of Useful Knowledge, treating of Animal Physiology, appears, in his view of life, to confound *feeling* with *consciousness.* The writer observes—"We know the mechanism by which life acts: we *feel* its result." (p. 1.) But the futility of unmeaning periphrasis, and the substituting of one difficulty for another, is shown forth in the sixth paragraph of the treatise alluded to, which also illustrates the incorrect use, by inexact writers, of "life" and "vitality," as if these terms were synonymous.—"Physiologists of the highest distinction have spoken of life without reserve or explanation, as a principle or a power; a real and distinct agent, upon which the various phenomena of life depend. But life, as far as we affix any *scientific* meaning to the word, is a peculiar mode of being, in which a certain series of phenomena are observed to take place; these phenomena

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a modification of the active principle of matter, called attraction, in the same way as the *material* part is supplied, by *changing* the organization [!] of the absorbed matter. And again, is not the vegetable, the source of support and increment to the animal frame, whilst its principle of attraction, or active principle, becomes the *source* of animal *vitality.* Give what name we will to the agent, we must still admit its existence, and I know not how we can better account for the *origin,* and *continuance,* and *increase* of vegetable and animal life, than by referring it, [query *them?*] to the *change* of the universal principle of activity, called *attraction,* of the nature of which we know nothing, but of the existence of which, we have proof and demonstration wherever we turn our eye, or direct our thought. In the animal frame, this [query "*attraction?*"] is incessantly added to the system, to supply the continual expenditure. When connected with the blood, it forms one species of animal life, and exhibits certain properties peculiar to itself. When the blood again is converted into *the* different parts of the body, *life* is once more *modified* according to the organization; and that continual supply, [query, of what: "blood"—"attraction"—or "*life once more modified?*"] which is demanded by the nerves, for the performance of their peculiar functions or actions is furnished by the *blood,* the brain and the medulla spinalis and trunk of the nerves *receiving,* or *secreting,* IT from the arteries."[!]

For the continuation of the argument, see the second paragraph of his *principles* OF SURGERY, which Dr. Burns thus cautiously brings to a close—" I surely need scarcely say, that this speculation, *for it is nothing more,* respecting the *origin* and *source* of animal life, is in no respect connected with *metaphysical* considerations. The principles of psycology are quite different from those of physiology [N.B.] and even *if* the materialist could maintain his position, his *sceptical conclusions* could not for one instant stand against the authority of revelation, and the general impression of mankind." True.]

are never found associated with any other conditions, but that one to the designation of which the term life is appropriated: hence we use this word, merely as the short expression by which this peculiar state of being, or the associated phenomena, which constitute it, are denoted. What life is, independently of this series of phenomena, we are wholly ignorant, as we are of every thing but appearances in relation to every object in nature."

In his lectures, and now as published in his Outlines of Physiology, professor Alison gets rid of the iteration into which others have got out of their depth without having in the least advanced the idea of life, by directing attention to the circumstance, that LIFE, as commonly used, does not denote an individual fact "and cannot, therefore, be *defined.* It is applied to a certain assemblage and succession of phenomena, which are seen in a great variety of the objects that surround us, and distinguish them from the other objects of our senses. When these phenomena are examined throughout the whole of nature, it is found that the most general and characteristic of them is, the continued appropriation and assimilation of surrounding matter, which we call *Nutrition;* a process which maintains a certain definite structure called *Organization,*—which originates, in all cases that can be satisfactorily observed, by *Generation*—and terminates by *Death.*" (p. 2.)

The fact of these functions of nutrition and generation (the one preserving the individual—the other continuing the species) being possessed in common by all living bodies without exception, led the Stagyrite to consider the evidence of LIFE as alone declared by, and consisting in, the *exercise* of these functions. "It is this series of phenomena (says Béclard), common to all organized bodies: an origin from a similar being, a termination by death, the maintenance of the individual by nutrition, that of the species by generation; in a word, an action of momentary formation, exercised in a body which has received it from a parent, and which transmits its principle to descendants, that is called *life.*" (Knox's translation of Béclard.)

But for the necessity of husbanding the space assigned to this concluding section of PART II. quotations of interest would have been presented from the writings of Bordeu and Barthez of Montpellier, and also from the productions of several of the medical faculty of Paris. Alluding merely in passing to the definitions of life offered in the works of Majendie and Adelon, and before calling the student's attention to the phrase "vital principle," this satisfactory and brief remark to be met with in the *Nouveaux Elémens de Pathologie*, by MM. Roche and Sanson, is deserving of notice—*La* VIE *est l'ensemble des effets produits par une organisation donnée.*

The phrase *Vital Principle* was prominently introduced into medical literature by MM. Barthez and Dumas. In the writings of the former physician, it is used, as will presently appear, in a sufficiently vague manner. A strong objection has been extended to the phrase, by the erudite biographer of Cullen. The expression in fact is considered by Dr. Thomson as eminently faultworthy, and as nothing but an *asylum ignorantiæ.* If employed in any but its only proper acceptation, it certainly *is* a cloak for ignorance, being a mere shifting away or a substitution of one difficulty for another. But, as a form of expression, it is perfectly legitimate if used in a restricted sense, as by Dr. Alison. The opinions of the latter professor will be cited, in proper place, after the reader has been put in possession of the views upon the vital principle doctrine, which are entertained by Drs. Prout, Barthez, Prichard, and others.

After translating Berzelius' description of *A living being considered as an object of chemical research*, Dr. Prout observes—"That peculiar principle or principles, which, under some condition or other, exists in all organized beings, and by which they are distinguished from inanimate matter, has received various appellations. In the present inquiry,[1] these principles may be viewed as agents; and to discriminate them from Heat, Electricity, and other agents or inorganic matters, they may be denominated *organic agents.*" After sketching what these agents "actually do," some fifteen pages farther on, Dr. Prout inquires—"With all the additional knowledge of every kind that we can command, let us attentively survey the most simple plant or animal; let us observe the actions, the changes, the modifications of form and properties it continually exhibits; and then let us seriously ask ourselves whether everything that we know will enable us to make even an approach toward an explanation of what we see. It is indeed true, that the plant or animal we examine is composed of charcoal and water, and of other ingredients with which we are familiar; that it is liable to be affected by Heat, Light, Electricity, and by other inorganic agents. But it is perfectly ascertained that these elements and agents, out of an organized body, *and left entirely to themselves,* never would or could unite, either in virtue of their own properties or from accident, so as to form any plant or animal, however insignificant. Are we not then compelled to infer, that within a plant or animal there exists a principle or agent superior to those whose operations we witness in the inorganic world; and which agent moreover possesses, under certain restraints, the power of controlling and directing the operations of these inferior agents? That this is a natural and just inference, no one who calmly views all the circumstances will ever deny." The existence of *one* principle, however, does not content Dr. Prout. He contends for the existence of a *plurality* of vital principles, in these words—"and if the existence of one such agent be admitted, the admission of the existence of others can scarcely be withheld; for the existence of one only, is quite inadequate to explain the infinite diversity among plants and animals. . . . . There may be an ascending gradation of these agents, from that of the comparatively simple plant, onward to that of the most complicated animal."—[!]—(p. 431.)

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[1] Dr. Prout's volume in the Bridgewater Treatises.

It comes to be a question, what Dr. Prout definitely understands by these principles or agents, whose existence is assumed to be unavoidably necessary, to "*explain* the infinite diversity among plants and animals," (p. 430,) and for which, if alone adequate, they certainly must be admitted to be very present helps in time of need. "The organic agent, in its simplest states, may be viewed as a power which so controls certain inorganic matters, as to form them into an apparatus, by which it arranges and organizes other matters, and thus effects its ulterior purposes. Where the operations of this simple organic agent terminate, those of another and more effective organic agent may be supposed to begin; which, by carrying the general process of organization a step further, adapts the organized material for the operations of a third and yet higher agent. Thus each new agent may be supposed to possess more or less control over all those below itself, and to have the power of appropriating their services, till, at length, at the top of the scale, we reach the perfection of organized existence."—(p. 437.) It is unnecessary to continue the quotation. Dr. Prout, evidently, either contends for, or would prove, too much. Enough has been said to show, either, that the existence of a plurality of such vital principles or organic agents must be viewed as something akin to the convenient introduction of Geniuses to clear up the difficulties and solve the mysteries of an Epic Poem, or, that the "organic agents" are unnecessary creations, or merely vague substitutions, for the individual and collective endowments of the different organs of the living mechanism, depending, as such different endowments do, upon differences in the collocation of the organized *material*, whether individual tissues—membranes—organs—or systems of organs, whose aggregate constitutes the living organized machine viewed as a whole, and whose fractional and integral susceptibilities respond to the influences exerted upon them, by the applied stimuli from without and from within, agreeably to fixed and determinate laws of the ORGANISM.

So much for Dr. Prout's opinions. Now for those of Barthez.

Professor Barthez,[1] contemporary with Cullen, "regarded it as essential to the philosophical investigation of the phenomena of living beings, that these phenomena should not be considered as having their origin either in the powers of the mind . . . . or in the properties of the organized body . . . . but that a general term should be adopted, expressive of the cause that produces the phenomena of life, which should not imply that these phenomena are either of a mental or of a corporeal nature, and the term which he selected for this purpose, was the Vital Principle. 'The utility of abstract conceptions with respect to this unknown principle (Barthez's words) is to secure us against those too limited views, which all the sectarians have taken, and against the errors into which they have fallen, in wishing to define the vital principle by more determinate notions.'

. . . . M. Barthez does not seem to have been able to determine, whether his Vital Principle should be regarded as a substance different in its nature from Body and Soul, and existing by itself, or merely as an abstract term, expressive of a simple vital faculty of the human body, unknown to us in its essence, but which is endowed with motive and sensitive powers. 'We are ignorant (he says) if it be a substance, or only a mode, of the living human body.' It would appear that he used the expression, not as affording a sufficient explanation of the functions of life; but, professedly, merely as an abstract term for an unknown power, the use of which he conceived would facilitate the investigation of the phenomena of living beings, just as, in algebra, letters are employed to denote unknown quantities." [2]

M. Barthez's other supposition respecting the Vital Principle (that it may be regarded as a peculiar faculty of the living human body) "is liable (says Dr. Thomson) to this obvious objection, that the phenomena proposed to be comprehended under this term, are so widely different in their nature from one another as not to admit of being referred to one common principle, nor, consequently, of being designated by one common name. . . . . To employ the term Life, or Vital Principle, to designate a single cause, power, or property of the organized body, upon which the whole of the phenomena of living beings depend, seems, indeed, as unphilosophical as it would be, if, after inventing a term to denote all the various operations on which the motion of a complicated piece of machinery depends, we should fancy to ourselves that the general term, so employed, denoted a common power from which all these various operations proceeded." (p. 449.)

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[1] [Born, says Dr. Thomson, in 1734; appointed professor at Montpellier, in 1761; died in 1806.]

[2] [Life of Cullen, p. 445.]

As if unmindful of the tenor of the remarks made in the opening sentences of the preceding paragraph, Dr. Thomson, by the introduction of the following expressions, which I use the freedom of typing in italics, encourages, or extends a kind of Pope's Indulgence to the continued confounding of the epithets Life and Vital Principle:—" The term Vital Principle (says he) considered simply as a *general* expression for the *whole* phenomena which constitute the functions of living bodies,—*the only legitimate meaning that can be attached to it,* may, if rigorously defined—that is, if the phenomena comprehended under it be accurately stated,—prove a convenient, because a *short,* expression for these phenomena, in medical writings." (p. 450).

Surely the term " Life" is not only the *shorter,* but also the only legitimate *general* expression for the *whole* phenomena which constitute living bodies? Setting aside the peculiarly vague ideas attached by Barthez to the term, it requires the exercise of but little consideration, for the mind of any reader to be satisfactorily made up as to this palpable difference subsisting between these two epithets: —That, whereas, while " vital principle " implies a single entity, nominal or real, and denotes a simple idea; "life," (*per contra,* as remarked by professor Alison, and as enforced by Dr. Henry,)—denoting neither "an individual fact nor a simple idea"—like other complex terms, can obviously be defined only by an enumeration of the phenomena which it associates.[1]

The following extracts, though lengthy, are select, and of a caste sufficiently pertinent to merit close perusal. The student's every attention, I feel assured, will be accorded them, and justice done to their bearing by him, when requested, as hereby he is, to keep in mind, that they typify the sentiments of an accomplished physician, whose special production, entitled as in the second note, is regarded, by not a few, as the most powerful work hitherto published in disproval of the vital principle doctrine.[2]

In his observations on the theory of a vital principle, as it refers to the phenomena of the beginning and the termination of life, Dr. Prichard remarks (Sec. XII). . . . "It seems to have been an opinion of the advocates of this doctrine [the existence of a Vital Principle] that the strongest hold of their system lies in the supposed explanation afforded by it, of the remarkable differences which are observed between the phenomena of the dead and the living body. The component matter, both of animal and vegetable bodies, is disposed, by the chemical affinities subsisting between its particles and those of the surrounding elements, to form new combinations with the latter, and thus gradually to fall into a state of decomposition as to its own substance. During life, there is some controlling agency which defends it against the influences of external elements; but its dissolution, or decomposition, manifestly begins to take place soon after death. According to the advocates of the doctrine we have been considering, there exists during life in the body, pervading every part, an elementary principle, or rather a highly attenuated substance, which, among its other singular and remarkable properties, has that of imparting to the constituent matter of the animal frame new chemical affinities, of suspending the usual affinities between it and the surrounding elements, and thereby protecting the living fabric from dissolution.* The existence of this peculiar agent is [query, *has been*] inferred from the explanation which, if the hypothesis be conceded, it has been thought to afford of a variety of phenomena, and from the implied supposition that these phenomena admit of no other satisfactory solution. But to this claim a strong objection has been set up, which has not yet been removed.† All the reasonings which have been brought forward upon this subject, proceed, as it has been observed, on the supposition that the component matters of the living and of the dead body are under the same circumstances, with no other exception than that of the imagined presence or absence of the vital principle. Without such a presumption, no conclusive inference could be drawn from a comparison of the different effects produced on the dead and living body by external agents. But this position will appear, on a moment's reflection, to be very far from the reality. The component materials of the dead and the living body are not existing under the same chemical circumstances, that is, in a similar manner subject to the operations of chemical affinity or elective attraction, either among the component particles themselves, or between them and the surrounding elements.[1] Their condition in these respects is different, and it is even different to an extent which it is impossible to appreciate. In the living animal, all the fluid particles of the body, which, taken together, constitute a considerable part of its entire mass, are continually in motion, at every instant changing their relative situation. They are not for a moment stagnating, or remaining in that state of rest which is favorable to new and spontaneous actions of the particles on each other. By the continual movement of fluids through every part of the solid material of the body, the same degree of heat is, nearly, maintained throughout; and changes of temperature, or accumulations of calorie, which are intimately connected with chemical actions, both in the relation of cause and in that of effect, are prevented from taking place. The blood is, moreover, perpetually receiving fresh supplies, from the aliment and from the atmosphere; it is thus continually changing in its composition, by the addition of new matter from without, as well as by throwing off, at every instant of time, a part of its own mass into the surrounding medium. The texture and composition of the solids is [query, *are?*] also altered every moment by the accretion of new particles, deposited from the blood, and by the absorption and excretion of such parts as are in a state which requires that they should be thrown off. An infinite variety of processes are [query, *is?*] carried on in every part of the animal economy, the tendency of which must be to interfere with and to counteract the order of those spontaneous changes, which would otherwise go on, and bring about the putrefaction of the solid and fluid parts." (p. 118.)

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[1] [Compare Dr. Alison's "Outlines of Physiology," p. 1, and *Report on the Physiology of the Nervous System*, by W. Charles Henry, M.D. *Physician to the Manchester Infirmary*. See the Introduction to this Report, to be found at pages 59 and 60 of the published Transactions of the Third Meeting of the British Association for the Advancement of Science, 1833.]

[2] "A Review of the Doctrine of A Vital Principle, as maintained by some Writers on Physiology. With Observations on the Causes of Physical and Animal Life: by J. C. Prichard, M.D. F.R.S. &c. 1829."

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* Plenck's Hygrologia Corporis Humani.

† Mr. Allen, Lecturer on Physiology.

[1] [This absurdity has been already considered in the note upon professor Rostan's Creed: See p. 135.]

I have in nothing curtailed this quotation, but given it textually, forasmuch as Dr. Prichard continues . . . . "These facts, for they are facts and not suppositions, tend to explain, in a far more rational manner than the theory of the vital principle, the nature of *that* PROPERTY *lodged* in the *living* body *by which it resists putrefaction or dissolution,* from the agency of *external* matter." (p. 119.)[1]

The sequel will, I trust, shew that there is a very different mode of viewing the point at issue, and which, if not more rational, is at least more comprehensive, and probably nearer the truth, than that defended by Dr. Prichard, who, at pp. 122–3, continues . . . . "The theory of a vital principle has been applied in a different manner, to account for the phenomena displayed at the beginnings of life in animal and vegetable bodies, and to get rid of the mystery which attends the gradual evolution of organic structure from ova and germs. Here the vital principle is no longer considered as a chemical agent, but assumes the character of a plastic or formative power; it presides over and sets in action the different processes by which growth and organization are affected, gives form and modification to the component parts of the animal or vegetable body, and contributes afterwards, by a preserving influence, to the maintenance of its existence for a definite portion of time. On this doctrine, which has at the first view a plausible appearance, we have to remark that it ascribes to a thing which, on the supposition, is merely a species of matter highly attenuated, properties and agencies which belong to the highest power and the highest intelligence. We may, if we choose to do so, term the cause which governs the organization and vital existence, a plastic principle, but it is a principle endowed with intelligence and design; it is the *same principle,* and *one* and the *same agent,* in all created bodies, since all are formed on similar and harmonious laws; it is in fact nothing more or less than the energy of the Deity [! !] operating continually through the universe, in preserving and renewing the various tribes of beings, in a manner scarcely less wonderful than at the period when they were first called into existence. To ascribe to a material [!] principle such properties, is to invest it not only with reason and intelligence, but with the wisdom and power of an omniscient Creator, who, if he works by second causes, cannot be conceived to endow them with his proper attributes. [!] Such language—[by whom previously used?]—is an abuse of words, and contrary to every maxim of philosophy." (p. 123)

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[1] [There are no italics or small capitals in the sentence, as it stands in the original.]

Upon arriving at the fourteenth section of his "Review," entitled—"Concluding remarks on the merits of the theory of a vital principle—Survey of other opinions on the causes of physical life." Dr. Prichard, conceiving it "now time to arrive at some general conclusion of the hypothesis of a vital principle, and its merits as a philosophical theory," thus expresses himself.... "Unless I am greatly mistaken, it will not be going too far to say, that it has been proved, by a careful examination, to be wanting in every characteristic of a legitimate theory. The cause which it assigns is taken up without proof, and with little or no support from collateral probability; and if its existence is granted, it is found quite inadequate to account for the phenomena, of which an explanation is sought."—(p. 132.)

Next, with regard to the attempted solution of the problem in what life consists,—Dr. Prichard considers the definition advanced by Bichat to be "the most simple and obvious one that can be imagined, differing scarcely from the ordinary meaning of the word life in popular language. It regards vitality [*vitality?*] as made up of the aggregate or sum of the functions which resist death."*

As an appanage to the foregoing paragraph, Dr. Prichard, as will be observed, quotes, as Bichat's expression, "L'Ensemble des fonctions qui résistent à la mort." Though I have not the original of Bichat's work at hand, to refer to, and thus set the matter at rest, yet I am inclined to think, that a material oversight, as the reader will doubtless allow, has most probably, if not certainly, been committed by Dr. Prichard. Bichat, it is true, composed his volume on Life and Death, at an age, when a mob of ideas, struggling for priority of utterance, crowded upon his mind. Yet, does he anywhere in his committed effusions, inadvertantly perpetrate so untenable a proposition, as, that *vitality* (as is alleged by Dr. P.) is "made up of the aggregate or sum of the functions which resist death"? The french quotation in the note, submitted by Dr. Prichard, has obviously no explicit meaning, or, rather, has no meaning at all; for, by another oversight, the nominative of the sentence is omitted. *What* is it that Bichat asserts to be "l' ensemble," &c.? By referring to M. Cayol's CREED, (see page 179,) Bichat is represented as more correctly using, not *vitality*, but LIFE, as the substantive term. Now, this obviously makes the greatest possible difference. With vitality as the nominative, no assertion could be more objectionable; whereas, with the epithet "life," or *la vie,* introduced, no position in physiology can be more appropriate or tenable.

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* "L'Ensemble des fonctions qui résistent à la mort."

The correction hazarded, is as if substantiated by the following excerpt, in which Dr. P. *concludes,* that "according to this view of the subject, *Life* consists in a continual train of actions, which have no cessation or interruption until death takes place, the machine becoming impeded in the mutual operations of its parts, or its structure being worn out."—(p. 133.)

Dr. Prichard considers the above to be an intelligible statement, and that "it might pass for a complete definition of the thing to be described—if it were not for the circumstance that we are enabled to trace the beginning [?] of vital action, and to perceive that the cause of vital action is antecedent to its manifestations. [!] Seeds have life, in a certain sense, that is, they are susceptible of vital action whenever the requisite conditions may be added, and they have this property long before the functions of life commence. Seeds are known to retain their vitality for an indefinite space of time, when secluded from those agents which give rise to germination—such as moisture, heat, and atmospheric air. It cannot be imagined, that any vital action is going on in the structure of an undeveloped seed, which may lie hidden in the earth, or be kept dry in a box, for many years, and be afterwards found capable of vegetating. Life, then—[but it will be well to type the passage in italics]—*Life,* then, is not *vital action, but the susceptibility of commencing such action, when certain agents are applied, and of maintaining the same actions when they are once set up.*"—(p. 134.)

But, though going a step further [??] than Bichat's definition, Dr. P. thinks a satisfactory solution of the problem "cannot be attained, unless we should be enabled to to determine *in what* the peculiar susceptibility consists, of setting up the actions destined to take place under the required conditions. Perhaps the actual state of our knowledge scarcely enables us to form a decided opinion upon this subject; but it is difficult to escape from the persuasion that the vitality of the seed, that which it retains for years in itself without change or perceptible effects, consists merely in its *organization*, including under that term the condition of its constituent parts, as to their mechanical texture and their chemical properties."—"Against this opinion, which is by no means a novel one, objections have been offered; but these are, perhaps, on insufficient grounds. It is strongly supported by the consideration that there are not only great, but, if I am not mistaken, insurmountable difficulties, attendant upon any other view of the subject that can be proposed."—(p. 135.)

It may here be asked, what sensible Vitalist ever tenably asserted otherwise, than that the susceptibilities to vital actions consist in *organization*, and are alone—can only be—evidenced by the organization responding to its appropriately applied stimuli?

After passing in review "the phenomena of vegetation, or the changes displayed when the appropriate agents are applied to the hitherto undeveloped seed"—which agents, according to him, are "chemical ones," and "the effects to which they give rise are, as it is well known, [?] in the first place, chemical effects."—Dr. Prichard enumerates the leading phenomena of the development of the young plant—the invariable tendency of the "plume" upwards, and the "radicle" downwards; and submits the following train of reflections, as to *how* all these processes are brought about. After admitting that "all these phenomena evidently point to the operation of a much higher power than merely *mechanical* principles," he says: "They are undoubted manifestations of that designing intellect, whose plans are perspicuously discovered throughout all Nature, but most strikingly in the organized parts of it. In what manner, by what instrumental methods the governing Intellect operates in these particular processes, human observation may never be able to discover; but this is certainly a legitimate object of investigation, and it is by no means impossible, that light may be thrown upon it by diligent research. At present, it can hardly be said that philosophers have proceeded much farther in it, than mere conjecture. Can it be supposed, that the component parts in the intimate texture of the seed, are organized, or constructed according to such a method or plan of preordinate arrangement, as to determine, on principles of mechanism" [*query,* physical or *vital?*] all the particular modes of its future developement, and to determine these under the particular circumstances of external agency, by which, from the influences of the surrounding elements, the organized body is to be acted upon in the early stages of its existence? This is what the most probable conjectures, supported by the result of very ingenious experiments on the subject of vegetable growth, in its most remarkable processes, would induce us to believe." [The observations of Mr. T. A. Knight on the causes which determine the direction assumed by the radicles and elongated plumules in vegetating seeds, in the PHIL. TRS. for 1806 and 1811, are here referred to.] "But if these investigations fail us, we can only seek for an explanation of the wonderful phenomena of vegetable growth and existence —infinitely diversified, yet always referring themselves to general laws or universal analogies,—by ascribing them more immediately[!] to the constant superintendence of the Designing and Operative Cause, which is, perhaps,[!] the sole real agent in every movement in the universe, either of an entire world, or of the smallest atom contained in it. I am unwilling to recur to a subject, on which so much has already been said in the preceding pages, but I must not forbear to remark, that the hypothesis of a vital principle, as applied to the series of phenomena just now described, or to others that may resemble them, is quite inadequate to assist us in explaining them. A single intelligent [!] principle in each organic being, acting by an energy and will [!!] of its own, would be a scheme too visionary for the most imaginative, and would besides be irreconcileable with the harmony of Nature in all its parts. On the other hand, the idea of one universal plastic principle, a second agent under the superintendence of the Deity, would be merely a revival of that old and exploded philosophy, which had to boast, as its last advocate, the learned Cudworth, and which nobody in later times has been found either fanciful or bold enough to advocate.

The developement of forms, according to their generic, specific, and individual diversities, not less in the vegetable than in the animal world, can only be accounted for by ascribing it to [What?]—the universal energy and wisdom of the Creator." But, as if himself struck with his having digressed, or rather with his having carried his poaching incursion unnecessarily far into the sacred preserves of theology, Dr. Prichard adds "this is a subject somewhat different from that with which we are at present engaged, namely, the inquiry *in what* consists the state of vitality in seeds, or, to use a general expression, in the undeveloped rudiments of organized beings, in which no vital action, no movement or operation peculiar to living bodies has yet commenced."

Is that philosophy? How can a seed, be a seed, without vital actions having commenced:—*commenced,* is the word; for it is absurd to suppose or assert, that, because if "*once* set up," they must be maintained? Does—Can the germseed, exist without a parent? But lest these queries leave untouched any other understood or expressed bearing of the quoted remarks, let it be further asked—even admitting that, "in the undeveloped rudiments of *organized beings,* in which no vital action [that is to say, I presume, no vital action that is *palpable* to the senses of the observer,] and no movement or operation *peculiar* to living bodies, have yet commenced," how can they, *quoad,* "rudiments of organized beings" exist? Why do they not yield to the *ordinary* laws of Physics and of Chemistry? Answer: the *passive* resistance of the *vital* force inherent in *organized* living MATTER, whether developed or *un*developed, enables them to exist in a stationary state, and to resist the ordinary laws of Physics and of Chemistry. Upon the inherent vital force or power, depends "the susceptibility of commencing vital actions when certain agents are applied, and of maintaining the same actions"—not, however, as Dr. Prichard, by an oversight, further says, "*when they are* once *set up*" (p. 134); but only to a certain extent, and for a certain time, so long as the appropriate stimuli *are applied*, which are adapted to provoke the inherent susceptibilities to *take on* vital action, and the possession of which susceptibilities, by reacting organized matter, are alone manifested to us by *effects* PASSIVE as well as ACTIVE. By Dr. Prichard's own appended words, the view of the subject here taken is borne out—not invalidated. The reader will judge. "It seems difficult to escape from the conviction that it consists alone *in* organization, meaning thereby the union of a *peculiar* MECHANICAL structure of the bodies, with a *certain* CHEMICAL composition of their parts of such a sort, and so modified, that changes *first* set up by *chemical* agents, shall become the means of bringing on actions or movements in the *intimate* mechanism of those parts, which actions constitute the functions of physical, or merely corporeal life."—(p. 142.)

There is any thing but occasion or excuse for imaginative Materialists, or, indeed, for any set of men obstructing the solution of questions, by creating difficulties where none do, or should, exist. Imagination—and it is unnecessary to lower one's self as identified with one's own argument, by invidiously qualifying the term by either of the prefixes, healthy or diseased, suffice it to say *exercised* imagination—is far from being confined, as the reader must have seen, to Vitalists. The evidence of the existence of a vital principle is beset with difficulties neither few nor small—difficulties which are intrinsic—difficulties which arise from the very nature of things, namely, of presenting, or of appealing to, such as shall appear convincing to the minds of finite creatures in an exiled stage of being. Why then conjure up difficulties? Are there not enough and to spare, without fleeing to such hypotheses as are shown to to have been indulged in: and by whom too? By an unsparing denier of the doctrine of a vital principle—by a medical materialist!

What rational vitalist, as has already been asked, ever allowed such an untenable assertion to get into type, as that the susceptibilities of vital actions otherwise than consist in, or are otherwise than exclusively manifested through, the medium of organization—of organization responding to appropriately applied stimuli, which phenomena forth the powers, qualities, or properties inherent in living organized matter?

The remarks upon germination are unworthy of the author of such a lately issued publication, as that which displays so enlightened a reach of thought upon the very intricate medical philosophy of the Intellectual and Moral Constitution of Man in states of pathology.[1] The associated use which is made—application it cannot be termed—of the allusions to the *immediate* [?] cause of the evolution of vegetable organization, approaches to disclosing, if it does not betray, anything, certainly, but unacquaintance with the laws of vegetable physiology, yet it nevertheless shows an incapacity to *apply* such knowledge in the most interesting of its philosophical relations namely, in assisting to clear up the vital problems of a higher, and more complex order of quickened beings.

But for being organized, and therefore possessing a vital force; and consequently latent or declared susceptibilities to vital action, a seed, in a tin box hermetically sealed, or deeply embosomed in the earth, could not resist the *ex*trinsic influences involving decay—say *dis*organization. Could it?

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[1] A Treatise on *Insanity* and other Disorders of the Mind; accompanied with numerous Cases, exemplifying various descriptions of Madness: by J. C. Prichard, M.D. F.R.S. Corresponding Member of the Institute of France, &c.

[The above may be said to be the best, the most comprehensive, and most enlightened work on the subjects of which it treats, with which critical readers have yet been favored by a british physician and an english press.]

The other passages marked, answer themselves. To revert to page 119 of "A REVIEW OF THE DOCTRINE OF *A* VITAL PRINCIPLE." What is the nature of that [N.B.—admitted] PROPERTY lodged in the *living* body, by which it *resists* putrefaction or dissolution, from the agency of *external* matter? These are Dr. Prichard's ipsissima verba; but put as above, in an interrogative form. Let the student re-peruse the question. The following queries, I trust, point to the adjusting or to the compromising of the cardinal point at issue. May they, in the language of Falstaff, be plain enough to ensure me *taking* the reader *with me*.

Be it observed, then, that the property lodged in the *living* body by which it resists putrefaction or dissolution, threatened by the agency of external matter, is admitted at p. 119 of his admired book—admitted by a Materialist, that is to say, by a medical Materialist.[1]

Dr. Prichard's not-to-be-withheld concession, then, is enough. Instead of saying, (and above all instead of committing themselves in print—*litera scripta manet*—by vaguely asserting,) "*that* property,"—(query, *what* property?) VITALISTS express, or mean to express, the same idea and nothing more, by their *word* VITALITY—

A Rose, by any other name, would smell as sweet.

Like the Crispin or the Currier (I forget which; but it really does not make very much difference) who during the siege ran up and down the city consequentially ejaculating

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[1] [The *professional* creed of a physician, or of any one, intrinsically needs have nothing to do with his theological creed. *Theology* is not a SCIENCE. Finite minds in a banished, all but forsaken state of existence, cannot *rationally* REASON upon the fundamental points of theological belief, unless they reason upon, or upon them as, *revealed* PREMISES.

I shall presently insist upon this postulate, (for such let it, as a matter of Faith, for concession's sake to Science, be termed,) as an important adumbration towards the compromising, I cannot say the solving, of a great physiological difficulty.]

"*There is nothing like* LEATHER (—there is nothing like ENTHUSIASM in the Arts) for fortifying the *breaches* against assailants"; so Materialists may think there is a hidden strength in such periphrastic modes of diction. Instead of the cheat-of-words-circumlocution of "the union of a *peculiar* MECHANICAL *structure,* with a *certain* CHEMICAL composition of their parts" (p. 142), Vitalists tersely say *vital,* to express, certainly, a difference—a difference which is indeed *peculiar,* between the laws of the organized living mechanism in states of statics and dynamics, as contradistinguished from the statics and dynamics of an Automaton consisting of mere mechanical and chemical MATTER, properly so called.

In sober earnest, what is the presumed plenipotentiary mystifiying influence of such vague terms as are used by presumed deniers of the existence of the doctrine of a vital principle? Their power is as fanciful and as fancied as is the concealment of the ostrich, with its spoonful of brain self-complacently obscured in the sand. What know our most truth-speaking physiologists of the rationale of Nature's Chemistry! Do not they refer it to LAWS OF VITALITY, *vital* AFFINITY, or to confessedly ultimate *facts* in that department of the philosophy of organized nature, named Biology?[1]

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[1] "All physiological inquiries are intended only to *ascertain the conditions, under which the various phenomena of Life take place,* and naturally terminate in a reference to certain *Laws of Vitality,* or ultimate facts in this department of Nature; just as the investigation and explanation of phenomena in the inanimate world terminate in a reference to certain Laws of Motion, of Gravitation, of Chemical Affinity, &c. Every Science is thus mainly conversant with principles *peculiar to itself.*" (Dr. Alison's Physiology, p. 3.)

Again, "It will be generally agreed that the first important step in *medical science* is the separation of the phenomena of the *living* body from all those which are comprised, in the Sciences of Chemistry and Mechanics on the one hand, and of pure Metaphysics on the other; and the general acknowledgment of the necessity of referring all the facts which the human body presents, in health and disease, to laws of Vitality, exemplified in the history of nature." (Preface p. vii.)

Lastly, and still more important:—"It appears on the whole, beyond doubt, that the phenomena of secretion and nutrition are inexplicable by, and inconsistent with, any principles that can be deduced from the observation of dead matter, or of other functions of the living body. At the same time, it is obvious

Before passing from Dr. Prichard's CONDESCENDENCE in disproval of the doctrine of a vital principle, I may use his language when allusion is thus made by him, (see the preface to his little volume,) to the spirit with which he has prosecuted the inquiry pointed out by the title of his Essay. He says, "if I may appear to have treated with little deference the opinions of some writers, who have merited a distinguished place in public regard, I hope that I shall not, on that account, be thought failing in the respect which is *personally* due to them, and which nobody is more willing than myself to testify. In relation to matters of philosophical discussion, the free examination of opinions must be conceded to all, without reference to the individuals who respectively may have maintained them."—(p. viii.)

Can sentiments be more unassailable? None can be more fittingly here introduced. In MEDICINE, the stationary has no place. If our science be not advancing, she must be retrograding. Inviting, for her own sake, and her many intrinsic glories, BRITISH MEDICINE owes nothing in the way of gratitude to a "discerning public"—nothing to a succession of quack-fostering ephemeral governments, for her envied position in the republic of the sciences—a position occupied by her, despite of opposition. The majesty of truth and truth's progress can only be homaged and impulsed by free and unfettered discussion—by discussion merciless otherwise than merciful to truth. No critic should forget that opinions are not facts. Per-

that they do not take place fortuitously, or at random, but according to fixed laws. We refer them, therefore, to a Vital Property, known to us only by its effects, and our notion of which is, as yet, necessarily vague and imperfect;—which *modifies* chemical affinities in the *living* body; varying in different parts of the body, and causing these to be differently affected by, and produce different effects, on the blood that pervades them;—influencing likewise, no doubt, the chemical nature and relations of the blood itself. To this property, the best name that has been given is VITAL AFFINITY. *Its existence will always be an ultimate fact in Physiology; but the limits of its agency, and the laws according to which it modifies the chemical relations of the substances subjected to it, may be ascertained; and their development will probably constitute the next great discovery in this Science. Op. Cit.* p. 57-8.

sonal respect and deference, if critics respect themselves, will not be withheld from an author, whether in youth's down, or time-stained with the rust of years. Yet the remotest undue or direct influences of such feeling have no proper place, as elements giving a hue to scientific discussion. As much of the author, as much allusion to the artist or physician, as a commentator may wish to inflict upon his paper and upon his reader; but, the less of the MAN dragged in, or injudiciously shown up by him, the better.

The time is at hand when the validity of even *opinions,* will not be estimated as hitherto, by the mere inertia of the *names* of their promulgators and defenders. Matters of reasoning or of quantity, if logically expressed, are indisputably as conclusive, whether prattled by an indistinctly articulating infant, or dogmatically mouthed by a Euclid, or by an arithmetician as noble as one Michael Cassio.

To avoid sifting or canvassing the premises and reasoning of even the most standard authorities, would be virtually to palisade error, by blocking up, as by a dropped portcullis, the advance of truth and the consummation of improvement. These opinions are not heteredox. Not as an apology, but as an explanation for the freedom of his censure of several of the doctrines of writers on Logic, and of those of the name-riding Aldrich in particular, Dr. Whately justly observes, that the reader would be in error, if he inferred that such freedom of criticism emanated from his (Dr. W.) having formed a low estimate of the merits of the mentioned author's Compendium. On the contrary, untrammeled criticism was commanded from Dr. Whately, from the otherwise deserved popularity of Aldrich's influential work; and additionally severe scrutiny was sanctioned, by the very consideration, that, "*errors are the more carefully to be pointed out, in proportion to the* AUTHORITY *by which they are sanctioned.*"

The concluding sentence of the preceding paragraph must be regarded as the enunciation of a THEOREM in scientific criticism.

After as fair and sifting a perusal of "A Review of the

Doctrine of a Vital Principle," as the bias of my creed has allowed, I take leave, with due deference to Dr. Prichard, to express as my opinion, that he has failed in invalidating the necessity for the belief in, as he has failed in disproving the existence of, a vital principle. Nevertheless, his appeals to the understanding of his readers are considered so cogent, that several, I understand, express themselves satisfied that they only require to be dispassionately studied, to all but, if not to fully, persuade the Agrippas of Vitalism to become Materialists. To the entierty of his disappointing arguments, however, inclusive or exclusive of his hypothetical declamations, a complete and incontestable reply may be expressed in four words. Logicians will approfound my meaning, when, in a spirit of conscious justice, I take leave, as a matter of opinion, to characterize his whole positive attack and negative defence, as a striking and instructive illustration of what by Casuists is termed, THE FALLACY OF OBJECTIONS.

Let the reader who is imbued with a well-directed love of research, with a view towards exhausting the literature of the question under prolonged discussion, turn to the seventh chapter of the original (or of Gold's translation) of Xavier Bichat's Researches on Life and Death. Let him inwardly digest the remarks on the differences between physical power and vital laws. Next let him peruse Dr. Copland's notes *in re*, appended to his enhanced edition of Richerand; and from page 27 onward of the *Fifth* edition of Dr. Elliotson's Human Physiology. Some observations, in themselves excellent—if the rather mistaken and too sensitive views, as regards the bearing of certain passages in the text which have evoked them, be overlooked—are given in the Introduction to the first vol. of Cuvier's Animal Kingdom, by the baron's accomplished british annotators.[1] What are Dr. Roget's sentiments?—"It is from the energies of life alone, that organic forms are produced. No fabric achieved by human power ever approached in refinement, the simplest of nature's works. The utmost efforts of the ingenuity or skill of man in the construction of the most delicate machinery is infinitely surpassed by the most ordinary of the mechanisms which are presented to our view in living bodies. However successful may be human artists in their attempts to contrive automata which shall exactly imitate different animal movements, there will always be wanting that *internal* PRINCIPLE of *action*, derived from a higher source than mechanism can supply, and without which these highly wrought works of man, like the unvivified statues of Prometheus, must remain for ever, mere masses of insentient and inert materials." (vol. 1, p. 61). And again, at page 4 of vol. II. Dr. Roget, when remarking upon the objects which must have been had in view in the formation of organized structures, continues .... "In order that these may be qualified for exercising the functions of life, they must be capable of continual alterations, displacements, and adjustments, varying perpetually both in kind and in degree, according to the progressive stages of their internal developement, and to the different circumstances which may arise in their external condition. The materials which Nature has employed in their construction, are, therefore, neither the elementary bodies, nor even their simpler and more permanent combinations; but such of their compounds as are of a more plastic nature, and which allow of a variable proportion of ingredients, and of great diversity in the modes of their combination. So great indeed is the complexity of these arrangements, that although chemistry is fully competent to the analysis of organized substances into their ultimate elements, no human art is adequate to effect their reunion in the same state as that in which they had existed in those substances; *for it was by the refined operations of* VITALITY, *the* only *power that could produce this adjustment*, that they have been brought into that condition."[1]

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[1] THE CLASS MAMMALIA arranged by the Baron Cuvier, *with* SPECIFIC DESCRIPTIONS by Edward Griffith, F.L.S. &c.; Major Charles Hamilton Smith, F.R.S. L.S. &c. and Edward Pidgeon.

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[1] *Animal and Vegetable Physiology* considered in reference to Natural Theology.

To conclude this part of the present section,—"Many of the phenomena exhibited by living bodies have been found to be not only inexplicable by, but manifestly inconsistent with, the mechanical and chemical laws that regulate the changes, and have been inferred from the observation, of other departments of Nature. In so far as we can ascertain this to be the case, we say that these phenomena are effects of the *Vital Principle*, or of *Vitality;* and that is our *definition* of these terms. They are the general expression for those changes in living bodies, which we judge to be peculiar to them; and stand in the very same relation to the science of Physiology, as the terms Chemical Affinity, Electricity, Gravitation, to other departments of Physical Science.

Thus defined, the notion of VITALITY *is not only admissible in* Physiology, *but is that which entitles* it *to the name of* a separate science. *Those physiologists, accordingly, who object to the substantive term* Vitality, *or* Principle of Life, *are obliged to use the adjective* Vital, *which conveys the very same idea.*"[1]

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[1] [Can these remarks by professor Alison be gainsaid? Can any psychologist so far stultify himself as to advance, that organization can be conceived by sane and educated human beings, to be a merely mechanical structure?.... Observe, however, the Materialists equivocating, by sliding in vague and qualifying terms, such as "peculiar" "living," and "certain." Doubtless, peculiar, living, and certain, because not yielding to the ordinary laws of gravitation and of affinity. If not, wherefore "*peculiar* MECHANICAL" with "*certain* CHEMICAL &c.? Can the human mind, soundly working, form an idea of an adjective term not relating to a substantive term, expressed or understood? It were well if Materialists would study Cobbett's excellent Grammar, or that by Lindley Murray, or by Bishop Lowth, or Horne Tooke's *Diversions of Purley*, and above all, profit by a remark made in a production with which many of the sect, in and out of medicine, may perchance be more familiar.....

If some authors who sperge their style with epithets, says Voltaire, "could *but* understand, that adjectives are the greatest enemies of substantives, although they agree in gender, number, and case!"

How *materially* deserving of attention by all who hedge away from the adjective *vital*, but who undauntedly fence every difficulty met with during the STEEPLE-CHACE of the attempted disproval of the doctrine of a vital principle, when horsed upon such Winged Coursers as "*living*," "*peculiar*," "*certain*"! This is certain.]

The views entertained by authors of repute, having been faithfully examined as to the questions, thus far investigated of Life and of the existence of a Vital Principle, the medical reader will be enabled to critically interest himself in the sub-divided inquiry about to be entered upon.

In presumed expectation of being able to simplify a confessedly involved, indeed an otherwise most complicated, inquiry—the great problem of Life as related to Organization, and that of Vitality to Organization and to Matter, will be treated of in a distinctly two-fold manner.

Upon the approximately satisfactory solution of the following questions, the validity, as will presently appear, of the farther to be propounded creed, mainly, if not entirely, depends, and turns as upon a pivot.

1°. Whether, judging from the impressions made upon our senses, and the exercise of our intellectual powers, LIFE is to be considered as the result of ORGANIZATION, or a superaddition to it?

2°. Whether the entity or nonentity, VITALITY, is the *cause* of Organization; or whether it is the result of, or a superaddition to the MATTER entering into the constitution of Plants, Brutes, and Man?

These are interesting queries. To the young physiologist, none can be more so. They point to doctrines—they strike at the root of articles of belief, which essentially lie at the foundation, and therefore affect the stability of the superstructure of all reasoning, with regard to the philosophy of the Laws of Life—the hygiene and the pathology of the entierty of beings, constituting the vegetable and animal creation.

Consideration of the first question. Suffice it here to summarily state, that from a review of all known physiological facts, LIFE is evidently dependent upon previous life. The brain of the physiologist can have no idea of life, but by presupposing organization. Where there is no organization, there can be no life. It is in living beings, only, that organization is seen, just as it is in connexion with, and dependent upon, organization, that the phenomena constituting life are alone seen. Life and organization, and organization and life, are inseparably related. Organized matter, alone, is susceptible of life. Life is *organization in action*, or ORGANISM.[1]

Organization, says the baron Cuvier, "results from a variety of arrangements, which are all of them necessary conditions of life—without which life cannot subsist. If the *effect* of the *vital action* be to change any of these conditions, so as to alter but one of those partial movements of which ITS OWN TOTALITY is composed, the cessation of LIFE must necessarily ensue.[2]

Every organized body, independently of the common qualities of its texture, has a form peculiar to itself, not only in its general and external structure, but even in the detail of its minutest part. It is this form which determines the particular direction of every partial movement within it, and regulates the complex operations of the vital action at large. It is this form which constitutes the *species*, and makes it what it is. All the parts cooperate to produce the general movement, by a particular action proper to each, and each in its turn experiences the effects produced by such general movement, so that in every being life produces as its result, a mutual action and reaction of all its parts.

Life then, in general, presupposes organization in general, and the life proper to any particular being presupposes the organization proper to such a being, as the movements of a clock presuppose the existence of the clock itself. Thus do we see life only in such beings as are fitted and organized to enjoy it, and all the efforts of natural philosophers have never been able to discover matter either organizing itself, or organized by any external cause. Life exercising upon the elements which compose a living body, and upon the particles which it extracts, an action contrary to that which ordinary chemical affinities would produce without it, affords us a convincing proof that it cannot be itself the result of any such affinities, and we are nevertheless ignorant of any other created power in nature, capable of uniting particles which before were separate."[1]

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[1] [Among the authors who advocate some or all of the above views, may be enumerated, Alison—Rostan—Béclard—Smith [?]—baron Cuvier—Stahl—and others.]

[2] [The views just advanced in the text by the baron Cuvier, are, perhaps, more clearly stated by professor Béclard. Thus:—

"Organized bodies spring, in a living state, from bodies like themselves. In all, and *during the whole course of their life, the* VITAL phenomena *are in an exact relation to the state of the* ORGANIZATION; and when the latter is altered, whether as a *consequence* of LIFE *itself*, or by *accidental circumstances*, life languishes and *ceases*, [death] and the *organization* is destroyed by the *chemical action* of its proper elements."—Dr. Knox's translation of Béclard, *passim*.]

The question of life being the cause or the result of organization, is not an idly assumed one. Dr. Prout, somewhat eminent as a philosopher and influential as a writer, asserts in his unequally able contribution to the Bridgewater Treatises, that LIFE is *not* the *result* of organization!

As will be found at page 414 of his "Chemistry, Meteorology, and the function of Digestion, considered with reference to Natural Theology"—the point of departure of Dr. Prout's exposition of "the *nature* and composition of organized bodies in general, as compared with inorganic matters," is the unexceptionable description by the celebrated philosopher Berzelius, of a *living* being considered as an object of chemical research. It is, says Berzelius, "a laboratory within which a number of chemical operations are conducted; of these operations, one chief object is to *produce* all those phenomena, which taken collectively are denomininated *Life;* while another chief object is to develope gradually the corporeal machine or Laboratory itself, from its existence in the condition of an atom, as it were, to its utmost state of perfection. From this point of utmost perfection, the whole begins to decline as gradually as it had been developed; the operations are performed in a manner less and less perfect, till at length the being ceases to live; and the elements of which it is composed, again set free, obey the general laws of inorganic nature.*" By the tenor of the remarks which follow, Dr. Prout identifies his own views with those of Berzelius. *Such,* he says, *is the history of organic* EXISTENCE.

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[1] Introduction to the Animal Kingdom, arranged in conformity with its organization. By the baron Cuvier, &c. *Op. cit.*

The reader will perceive, at a glance, that life is explicitly considered as the *result* of organization. Of this there cannot be a doubt. There is only one word in the above quotation displayed differently than as typed in the Bridgewater Treatise, from which it is otherwise textually extracted. The word is "produce,"—and upon it hinges the inference or corollary from the passage, which here relates to the settlement of the question at issue. If there is meaning in *words,* as there always is in those used by the accurate-minded Berzelius, the inference is obvious. The object of the vital chemical operations conducted within the *organized living being* (likened to a "laboratory") is, "to produce (—What? "all those phenomena which, collectively, constitute)—*Life.*" Life, then, if admitted to be *produced* by, is tantamount to saying, in other words, that it is the *result* of, the actions going on in the living laboratory, or organized structure of a living being, considered as an object of chemical research.

Now, that is a clear and distinct proposition; and the inference from it,—namely, that life is the *result* of organization—that life is organization *in action,* is no less an equally clear and distinct corollary.

After exposing the notions attached by him to the plurality of vital principles or organic agents[1], Dr. Prout, twenty-three pages onward, thus *applies* the postulated data grounded upon the supposed existence of his organic agents:—"This view of the successive creation of organic agents, which harmonizes not only with the phenomena of geology, but with the differences which are observable among plants and animals, and with the development of the more perfect species, is directly opposed to the notion of spontaneous development maintained by some distinguished French philosophers; as well as to the opinion that life is the *result* of organization." (p. 437.)

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* Berzelius Traité de Chimie, tom. v. p. 1.

[1] [In reference to these, an explanatory extract has been submitted. See p. 205 of this Section.]

The notion of the *spontaneous development*, alluded to, is known to most physiologists in Britain, and is adverted to by the many eminent lecturers in our Universities and Schools of Medicine, but solely, as a matter of curiosity—as a chimera, in fact. Chimerical, however, though it appear, the hallucination is seriously entertained by some continental philosophers. The creed is an illegitimate poached creed—a creed "got up" as the counterfeit, or *vis-à-vis*, to that of Pythagoras. The reader will judge when reminded, that it is a belief in the metempsychosis or transmigration, not of *souls*, but of *bodies!* It is somewhat to be regretted, that the serious manner in which the so every way absurd creed of the earthly transmigration of bodies, is commented upon by an eminent british philosopher, may, in all probability, have the effect of securing more attention to the exotic chimera, than it otherwise would have either commanded or merited. This, however, by the way.

It is in direct opposition to the notion of spontaneous development maintained by some french philosophers, *as well as to the* opinion, *that* life *is the* result *of organization*, that Dr. Prout thus enters into a defence detail:—

"Thus we consider it impossible, that by any accidental concurrence of circumstances, a dog can, in the progress of time, be gradually converted into an ape, or an ape into a man; and moreover, we not only think such an hypothesis directly at variance with the whole tenor of the laws of nature, but quite absurd. The laws of nature, as we have shown, are, in all cases, most rigidly adhered to by the Deity. These laws, therefore, are unalterably stable, within the limits that have been assigned to them. Now, from what we know of the laws of nature, or of the properties of the elements of matter, or of the agents by which they are moved, it is, as we have already stated, impossible to conceive, that carbon, water, and electricity, of their own accord, and from any inherent influence, can so unite as to form the humblest plant or animal; much less, so as to secure its perpetual existence by reproduction. For similar reasons it is equally impossible to conceive, that there can ever be such a spontaneous arrangement or combination of *inferior* organic agents, as to form a *superior* agent. Whenever, therefore, a new and specific agent is required, a new and specific act of *creation* must be performed by the Great Architect of the Universe.[1]"

Prior to remarking, that "in accounting for the phenomena of life, it is absolutely necessary to assume the existence of some agency different from, and superior to, that which operates among inorganic matters;" and "as no inferior agencies can be supposed so to combine as to form a superior agency; does it not accord better with our reason, as well as with our experience, to assume, at once, a new creation of the higher principle?" . . . Dr. Prout asserts, "nearly similar remarks apply to the opinion that the living principle [observe, not *life*, but the living principle,] is the *result* of organization. The living principle is not the *result* of organization, but the cause of organization." (p. 438–9.)

Presuming that Dr. Prout's ideas have even got confused, by losing sight of, not the conventional distinction, merely, but the essential difference, between *life* and *vital principle*, his opinion that "LIFE is *not* the *result* of organization" is untenable. It would be impertinent, in more senses than one, being unnecessary for purposes of scientific criticism, to say, that it is more. If he mean that life is the cause of organization, it is not a real but a verbal contradiction—a mere quibble about words, not things; else, not only the Terms but their bearing should be clearly defined and pointed out. Peradventure it may be said that, just as, in one sense, life presupposes organization, and organization life; so life produced, presupposes previous life as the producer. And, forasmuch as the relation of life to organization *at the creation,* is here not at issue, (the distinct question before the reader having reference solely to the relation of organization and life, as inferred from the phenomena presented to the consideration of the physiologist by living beings, as he finds them,) life can only be considered as the result of organization; because, where there is no organization, there can be no life.

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[1] [Compare the irrefragable view in this individual passage in the text, and also the collateral remarks in Dr. Alison's *Physiology*, p. 9, LAWS OF VITAL CONTRACTIONS, with the view entertained of the "*immediate* agency," advanced by Dr. Prichard. See p. 140 of his work, or quotation, p. 215 of this Section.]

Thus it will be found, that in grappling with physiological questions, there is no one which demands more explicit definition of terms and bearings, than this. For again, in another sense, by abstracting not only from the question as respects the creation of Adam, and, to use a botanical expression, of the alleged "splicing" off, of the mother of flesh, and of subsequent sin and pathology from his side, but also abstracting from every bearing of the problem, save one—the generation of life from previous life, as determined by the duet-like venereal orgasm—then, LIFE and ORGANIZATION, (*quoad* the germ dislodged from its relatively passive state in the ovary, and the way thereby paved for its independent existence out of the body of the female parent,) are *simultaneous.* Herein is no paradox, as the sequel will show. Paradox upon paradox may, however, be artificially created with harlequin-like facility, if questions, in their own nature perfectly distinct, are, by turbid processes of thought, confounded together.

Finally: with regard to Dr. Prout's opinion embodied in his copulated assertion, the bearing of which, however, be it noted, is quite distinct, namely, that "the LIVING PRINCIPLE is *not* the *result* of organization," (p. 438,) it would be to partially anticipate the consideration of the second question, if, under this division of the inquiry, any farther observation were to be made, than, that by physiologists, the vital principle, essentially, cannot, *per se,* be considered as the CAUSE, any more than it can be regarded as the EFFECT, of *Organization.*

Consideration of the second question.—Though the statement of all the chief points involved in the second general query, (see page 226,) and the replies to such of them as appear to be of real moment, may be reduced within the limits of a nutshell; yet, with a view to comprehensiveness and perspicuity, details must, at the least, to a certain extent, be entered upon.

Through the medium of the diagrams and appended remarks, critical and explanatory, in the next page, the relation of Organism and Life, as, sometimes very clearly, but more frequently as vaguely, understood and defended by several, is thus displayed by an able modern lecturer on the Institutes of Medicine:

"Organism and life are, under ordinary circumstances—in other words, under the application of the requisite stimuli—coincident, the commencement of the former producing generally that of the latter, while the cessation of the former gives rise always to that of the latter also; and if we retrace all that has been said respecting each particular feature in the structure of organized beings—their individuality and definite form and volume, the multiplicity of their distinct organs, the co-existence in them of solid and fluid parts, each in a constant state of mutual conversion, and their specific chemical nature—we shall find that every thing relating to their organism or structure has a direct relation to their life, or the actions which they are to perform. Organism and life, then, in this sense of the latter term, may be described as standing in the relation *indirectly* of cause and effect to each other, the former giving rise essentially to the development of a certain property called irratibility or vitality, [query, *vitality?*][1] which, when acted on by certain powers, generally

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[1] [Query, "*vitality?*" Surely, the introduction of this term in connexion with "irritability," is objectionable—objectionable, if not on account of its misapplication, at the least of its manifest ambiguity of meaning, as employed, by the generally accurate-minded lecturer, in the text.

We say that Irritability is a *property* or quality of *organized living* MATTER, just as we say that extension, divisibility, repulsion, &c. are attributes or *proper-*

in more or less constant operation, produces those actions in the sum of which life consists. This relation, then, of the two may be represented by the following plan:

$$\begin{array}{c}\text{Organism.}\\ | \\ \text{Irritability } \underbrace{\text{or Vitality.} \qquad \text{Certain}}_{\text{Life=Living Action.}} \text{ Stimuli.}\end{array}$$

This view of the matter, however, has not always, nor even generally, been taken; the structure of organized beings having been admitted indeed to be identical with their organism, but not their actions with life; and while it is allowed that this organism and these actions are commonly coincident, it is denied that they stand either directly or indirectly, in the relation of cause and effect to each other, both being described as dependent on life as a substantial principle. The following plan may represent this relation of organism and life:—

$$\begin{array}{c}\text{Organization } \overbrace{\text{(producing Organism.)} \quad \text{Living}}^{\text{Life=Vital Principle.}} \text{ Action.}\end{array}$$

It is hence obvious that the word Life is employed in two very different acceptations, signifying sometimes merely that chain of peculiar actions above described as characteristic of organized beings, the immediate conditions of which are to be sought for, partially at least, in a necessary result of organism; and sometimes a substantial principle—an entity, whether material or immaterial—which, entering

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ties of "Matter"—simply so called. What, then, if an author were to call *Matter* itself a "property"? Would such an expression be assented to? If so, with as much propriety may *Vitality* be called a property.

These remarks have appeared to me to be called for, even apart altogether from any other purpose than to remind the reader, that *vitality* is used in a different sense throughout this section: namely, as a real or imaginary permanent substantive *subject* of certain properties, just as Matter, itself, is.]

certain aggregations of matter, regulates as well their organization—whence results their organism—as all the other phenomena which they exhibit.

The questions then arise, 1st, What evidence have we of the existence of any such substantial principle? and 2nd, how far is it adequate, admitting its existence, to explain vital phenomena? If we fail in establishing both its existence and its adequacy to produce the effects which have been ascribed to it, we must acquiesce in the proposition first advanced, that Life is a mere abstract term used to denote the characteristic actions of organized beings resulting more or less immediately from their organism."[1]

The arguments adduced "in disproval of the Vital Principle of Authors"—the title of Dr. Fletcher's fourteenth lecture—are deserving of the best attention the student can give them. If it be borne in mind how conflicting the evidence is, upon which Dr. Fletcher has grounded his judicial criticism and how difficult a matter it is, to avoid getting fairly bewildered and lost in confusion among the contradictory opinions of a mob of authors, upon such a *res vexata*, the intrinsic merit of this indefatigable lecturer's train of reasoning will be allowed to be great indeed, independently of the *select* range of research with which he has endeavored to strengthen his positions. Premising, that it is of course for the reader to determine the validity of Dr. Fletcher's argumentation, and which he can only properly adjudicate by possessing himself of the data and suggested ideas pervading the lectures referred to, I may be permitted as a matter of opinion to here observe, that the impression left upon my mind, as to the arguments in question, is, that their intrinsic import is ambiguous:—like the facetiously but appropriately styled

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[1] [See the conclusion of a Lecture at p. 173 of Dr. Ryan's London Medical and Surgical Journal, (vol vii., 1835) forming the thirteenth of an elaborate series of Lectures, in course of publication, on the "INSTITUTIONS OF MEDICINE, delivered by John Fletcher, M.D., F.R.C.S.E., at the Argyle Square School of Medicine, Edinburgh, 1834-5."]

"Rule of *Adoption*," they appear to truly *work both ways*.[1] So long as remarks are offered as opinions, and received in a similar spirit, they are wholly divested of a resting-place for the remotest umbrage being justly taken at, or grounded upon, them; and the nature of the impression made by Dr. Fletcher's views, which has just been characterized as ambiguous, is, with becoming deference, offered *after* a very careful perusal, first of his text and elaborate notes, and next of the text *by itself;* and lastly, after drawing out and comparing a summary of the bearings throughout lectures xiii. and xiv.

One of the assumed (Vitalist's) questions brought very interestingly under discussion by Dr. F. (Lecture xiv.) is—"If organism be the cause, either per se or in conjunction with any other condition of life, what is the cause of organization, or that process from which organism resulted? Can any known chemical or mechanical forces give rise to so specific a composition, so complicated a substance, so heterogenous an aggregation, or so determinate a body, as those which characterize an organized being? It has been conceived, indeed, even by some of the supporters, on other grounds, of the doctrine in question, that such may be the case, and that the substantial life may not perhaps enter such a being till it has become organized by other means; but it may be safely conceded to the most unmitigated substantialist that no such chemical or mechanical powers are competent to produce such an effect. It has been already shown at some length" [and luminously,] "that the chemical composition of organized tissues is quite distinct from that of merely chemical compounds, and consequently that the first step towards organism requires powers different from those by which inorganic matters are formed. It requires life, but not a living principle. It requires the life, or living action (Ζωη) of the thing *organizing;* not any living principle (ψυχη) in the thing *to be organized.* It has been expressly stated lately, that organized beings can be formed only by such as are already organized, the existence of any one implying always the pre-existence of some other; and that the forming and separating from themselves, each in its generation, such new beings is one of the characteristic actions—that is to say, a part of the life of plants and animals in general. The organization then of the embryo, or the process by which a new being possessed of organs, however rude, and, in virtue of its organism, indued with irritability or [?] vitality, is formed, is the work of the parent. Nor does there appear to be any greater difficulty, as lately observed, in conceiving this particular application of the process of secretion, than in understanding that by which every organized being, not only continually renews, in proportion as they are removed by absorption or other means, its own natural organized tissues, and sometimes whole organs, but also frequently deposits new ones, each of which is equally indued with irritability or vitality as those germs which are the rudiments of beings of a future generation; nay, the difficulty is in fact less in the case of such germs, than in that of which are called false growths, in general; since, in the former case, we have to comprehend only the organization, or the formation by secretion of the rudimental structure in question, whereas, in the latter, we have to comprehend further the mode by which, at first distinct, as already described, from the parent animal, it subsequently becomes a part of it. The germ then so formed by a vital action of the parent, and possessed, in virtue of its primordial organism, of the property of irritability or vitality, maintains from the first, by the co-operation of this property and the natural stimuli by which it is excited, a series of actions constituting its life; and it is by one modification of these actions, as effected by a supposed specific force, which has been signalized by the name of plastic power, and so many others elsewhere specified, and not by any substantial vital principle that its full elaboration is effected. It is by this that in animals are formed, by means of the parenchyma laid down from a very early period in the apparently homogeneous germinal membrane, first the three principal layers of the latter, and subsequently all the tissues and organs of the body in a certain definite series; so that, though the organization of the embryo was the work of its parent, its organogenesy is its own, and parts which it received from the former in a state of diffusion and ambiguity, itself renders concentrated and determinate."[1]

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[1] [For an exemplification of the accommodating spirit of the so-styled Rule of Adoption, see preface, *passim*.]

Dr. Fletcher then proceeds—"But if the embryo be thus organized by its parent, how, it may be asked, was the first parent organized?"

Now, as a very little reflection will serve to manifest, this is the very problem of problems—that upon the solving or the compromising of which, depends, the satisfactory consideration of the second question, namely, whether the entity or nonentity, VITALITY, is the cause of Organization; or whether it is the result of, or a superaddition to the MATTER entering into the constitution of Plants, Brutes, and Man. Accordingly it is proposed to cautiously consider this question, though Dr. Fletcher, in one sense, but that a very limited one, justly observes, that the physiologist, "in the strict sense of the word, has nothing whatever to do" with it; assigning, by way of reason, that, "the Almighty Creator—the first and the last—willed that, not only the inorganic but the organized kingdoms of Nature should exist; but how either the one or the other was originally called into being He alone knows, who said 'Let there be light—and there was LIGHT'—

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[1] [In connexion with Dr. Fletcher's remarks upon the ORGANO-GENESIS of the embryo, the following excerpt from Dr. Roget's comments upon FINAL CAUSES, may be submitted with advantage.

"Microscopic observations teach us that the embryo of an organic being contains within itself the rudiments of the future vegetable or animal structure, into which it is gradually transformed by the slow and successive expansion and developement of all its parts. The processes of nutrition do nothing more than fill up the outlines already sketched on the living canvass. Every organ, nay every fibre, resulting from this developement, contributes its share in the production of certain definite effects, which we constantly witness taking place around us, as well as experience in our own persons. These effects, though so familiar to us, are not on that account the less involved in mystery, or the less replete with wonder."—BRIDGEWATER TREATISE on *Animal* and *Vegetable Physiology* considered with reference to Natural Theology.]

> Whose word leaps forth at once to its effect—
> Who calls for things that are not—and THEY COME!"[1]

That information, however, *has* been condescended to postdiluvian Men, and it is to be presumed that physiologists are not excluded from the category, not only as to the manner of the creation of the inorganic world, and the bodies constituting the organic kingdoms of Nature, from the humblest of every plant of the field *before it was in the earth, and every herb of the field before it grew*,[2] up to the simple enunciation as to *how* the first human being was started into existence, when *there was not a man to* TILL *the ground*,—will now be attempted to be shown.

Is it necessary to remind the student—is it requisite to affirm, that no mere human intellect, how gigantic soever, or however disciplined by feats of intellectual prowess in the loftiest gymnasium of Mind—can at all form a conception of the essential mysteries of The Creation, or of the manner of the calling of this Planet into its relative position in space, and of the co-related part which it plays, in the catholic universe of worlds! Had FINITE'S REASON been adequate, then was INFINITE'S REVELATION more than superfluous. But superhuman revelation *was* necessary, and heaven-descended revelation has, accordingly, been booned for the especial good of all in-the-image-of-God made: and this, to the end, that, after looking wistfully with the microscopic eye of REASON—

> Through Nature, up to Nature's God!

during their exiled pilgrimage of probation, they, as children of the Earth, and but for a fleeting, span-like season, might have superadded, an unutterably loftier—a far more heart-rooted assurance, of the existence of a world elsewhere made doubly, certainly, sure; and of a yet more sustaining prospect without end, vista'd to them, through the medium of the telescopic eye of FAITH.

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[1] Lecture xiv. *cit.*

[2] Genesis c. ii. v. 4 and 5.

Had the influences of the crude opinions hazarded by scientific men upon the isolated questions under discussion, been confined to them *as scientific men*, and to the progress of their departments of scientific study, then these imperfect remarks, perchance, might have been characterized, and with reason too, as misplaced. Unhappily, they are anything but misplaced. Reader! is it not so? It would, indeed, be a melancholy, a truly melancholy, a painful rather than an invidious, task, to show cause and to adduce proof! It is enough and to spare, to say, that from the nature of things, from the nature of man and man's BRAIN—the seat of Mind, it bespeaks the most humiliating earthgoing *ir*rationality, to attempt to reason upon the *how* of anything, (save upon the superhumanly revealed premises meted to us,) touching the fiating into existence of LIGHT;—of the firmament;—of the separation of the waters;—of the rolling of the seas together, and of the appearance of the dry land;—of the grass, the herb yielding seed, the fruit tree yielding fruit after its kind, whose seed is in itself;—of the stars, and of the greater light to rule the day and of the appointment of the lesser light to rule the night;—of the moving things that have life in the great deeps, in gradation downward from the Leviathan,—

> Hugest of living creatures, that swam the ocean's brim;

of every winged fowl, after his kind, that flieth in the open firmament of Heaven,—and of the catalogue of what by the Eternal Architect was seen to be good, and blessed as such, at the completion of the "fifth day's" work of OMNI-BENEVOLENCE. And if so, for this is far from all, how much more aberrational, otherwise than upon revealed premises, for finite minds in an exiled, all but God-forsaken stage of existence, to reason, or even to speculate, as to *how* the first parent, (after the beast, and cattle, and every thing that creepeth upon the earth after their kind,) was exchaosed, or eliminated,[1] and so organized and otherwise more loftily endowed by the First and the Last, as to constitute the confessed Type of the "Lord of the Creation," with vicegerented dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the EARTH—upon whose crust he himself was commanded to be fruitful; to multiply, and to replenish: and farthermore,—to *subdue* all things.

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[1] [Eliminated—*e*, *limine*,—out of the mud; i. e.—CHAOS. Hence, too, "element"—the signification of which is sufficiently distinct from "principle," with

The tenor of what has been said, and much more, that, though unsaid, will rise to remembrance—must forcibly strike the well-regulated, the strong-in-humility mind, with a pervading and riveting conviction of a nature, and for the ideas suggested by which, it were a vain struggle to endeavor to find a suitable expression for, in ordinary words.

There would seem to be but two modes or media, of it may be, many, (?), in which certain passages of the Mosäic account of the World's Creation, can be appealed to, as lights to disperse the otherwise cimmerian darkness with which a question in its own nature, as has been said, and of infinitely mysterious bearing, is shrouded. Even at best, to the helplessly finite mind of man, with every aid and with all the appliances and means of modern science to boot, it still can be surveyed, but as through a glass, darkly. The purblind pride of some, and the self-sufficiency of others, (particularly among certain Theologians) is conspicuously evidenced in the absurd spirit of their cautionary remarks to fellow mortals, therein at least no better than themselves, to avoid, as *they* do, all allusions or ponderings upon such arcana of the Creation! To quote a pertinent passage somewhat kindredly applied by Dr. Whately, in his remarks upon the question of the Trinity,—"they often justify to themselves this procedure, on the ground, that they are not sufficiently *learned* theogians, nor possessed of *sufficient* MENTAL *powers* to

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which, however, it is continually and erroneously confounded. Bacon has ably insisted upon this difference; and the great lexicographer, Johnson, has had the sagacity to follow Lord Verulam as an authority.]

meddle with *such* ABSTRUSE and MYSTERIOUS *points;* not considering, *that a mystery inscrutable to man,* AS MAN, *surpassing the utmost reach of* human intellect *must be such to the* learned *and to the* simple, *alike.*

"*In utter darkness,* THE STRONGEST SIGHT AND THE WEAKEST ARE ON A LEVEL."

The physiologist, then, by observing the behavior of organized living bodies, can satisfy his own mind—*inter alia.*

1°—That the phenomena of such living bodies are inexplicable by—inconsistent with—not reducible to, *any* of the ordinary laws regulating the conduct of the subjects of nature; such for instance as the Chemical or Physical: they are, therefore, (because *sui generis,)* most properly termed *Vital:*

2° That embryotic LIFE is the *result* of a series of *vital* actions (GENERATION) *effected by previous* life:

3° That the sum of that previous life—in kind and degree, is dependent upon the condition of, and is constituted and phenomenaed forth by, the organization in action—ORGANISM:

4° That organism being organization *in action,* necessarily, therefore, presupposes organization as the essentially required medium, or tangible *substance,* of its manifestation.

Lastly, by in this way, ultimating or reascending the inquiry from the determined question of "life," in strict physiological import, being the result of "organization," the physiologist's mind, and every mind, is at length brought to a standstill by the query—how the *first* parent of human flesh was *created;* observe, "created," not *generated* or propagated, but exchaosed from the dust of the ground.

Herein must it be manifest, why from the very nature of things, the questions embraced by the second problem, (namely, What is the *cause* of human organization? Or, is the by some presumed "cause," to be considered more correctly as the "*result*" of MATTER; or, a distinct substantive *superaddition* to IT, as part and parcel of the mechanism of plants, brutes, and man?) should always be, as they have throughout this section been, presented to the student, disentangled, and kept apart, from every other.

First: touching the superaddition of Vitality to Matter, or of vitality being the result of organized matter, or matter *peculiarly* collocated,—man, AS MAN, must ground his reasoning, if reason he *will*, or even rationally speculate, as to the "*how*" of the creation of the first human being, upon the *premises* with which he is furnished. Very well. Let us, first of all, see what these are, or what they are alleged to be, (mark the qualifying concession, and of which, more presently,) before making any comments.

The passages in the first book of the Pentateuch, then, which are of special interest, as helps, (and to physiologists of course, as to other creatures,) towards comprehending, as far as is possible, the *second* order of queries, —are, from verses 26, and particularly 27, onward, to the end of the first chapter of Genesis.

There is one among many characteristics, of the opening chapter adverted to, which must surely strike every reflecting mind. It is this—Not one word of reasoning or of argumentation, be it observed, such as a *why, wherefore, therefore, forasmuch as*, or a *because*, occurs in it, from beginning to end. The thirty-one verses, constituting the entire chapter, embrace a matter of terse, plain, beautifully essenced *statement*—a REVELATION in fact; and a Revelation forasmuch as, Reasoning was inadequate to the conceiving, (and how much less adequate to the finding out!) what, in the relative fulness of time, preparatory to the First Advent, was deemed necessary to be submitted to the exiled Jew (and Gentile?,) then existing, and to be. Because, therefore, of finite reasoning being insufficient, the introduction of such words of argumentation as marked, above, in italics, would have been more than misplaced; and, accordingly, therefore, or at all events, none occur.

The second is clearly the commencement of a commentary upon some of the chief details as summaried in the first chapter. And, it is not till very near the close of Chapter II. that any *Reason*—through the medium of the words which symbol forth the inspired or breathed-into ideas, of the Jewish Lawgiver—the chosen interpreter of the heaven-descended revelation essenced in the form of the unequalled *statement* in Chapter I., as has just been said—is assigned.

Thus, after forming *also* "out of the *ground*, every beast of the field, and every fowl of the air," and which were brought "unto Adam that he might name them," we are told in the 18th, and as reiterated in the last clause of the 20th verse, that it was because of its not being "good that man should be alone," (v. 18) and there being no help meet, found for him (v. 20)—during a deep sleep which was made to "fall" upon the only *created* human being,—Eve was, as physiologists in botany would scientifically express it, "spliced" off from his side—the flesh being closed up, over the site of the rib removed from Adam's side (v. 21). Now, out of this organized structure, (namely the "rib") was the mother of *generated* or conserved flesh, evolutioned; and upon being brought unto him, Adam is represented as having said "This is now bone of my bone, and flesh of my flesh: she shall be called *Wo*man; *because* she was taken out of man.". . . . How typical!

But to further close and grapple with the question of VITALITY being the result—the effect—or the cause of, organization; or a property, attribute, or power, of organization itself—verse 7 must be looked at, forward and backward, clause by clause. First of all, it will be advisable that the reader peruse verses 4, 5, and 6, which he is hereby requested to do, and that, too, in a very attentive manner. This complied with, he will observe, after the remark—*there was not a man* to TILL *the* ground—that at verse 7, is condescended the only information which mankind (including Men of Science, it is to be presumed) possess, of the manner, or the "*how*" of the creation of the *First* Parent.

Thus, and therein, we are expressly told, that Man was formed out of the "*dust of the ground*"[1] [Matter?]; that is to say, that all his material parts, properly so called, were colloeated out of the dust of the ground—plastic in the hands of The Great Potter, and in such a mould, as, that not only his as yet un*soul*ed but even un*vital*ized Mechanism, was fashioned in the *form* of MAN, as distinct from that of the previously made plants, fishes, and creeping things upon the earth.

We are next explicitly told, that into this Matter colloeated in the form of Man, as aforesaid, was *afterward* "BREATHED the *breath of Life*" [Vitality?]. But this is not all. After being thus *elemented* or eliminated[2] from matter, and the matter farther prometheused by the *breath of* LIFE being "breathed into his nostrils," the IN THE IMAGE-OF-GOD-MADE, was otherwise loftily endowed, as lord of the creation, by a *soul* being superadded to the previously vitalized body, or, in which organ*ism*ed mechanism or living temple, a soul was also enshrined.[3]

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[1] [Elemented—*e, humo,* that is to say, *out of the ground,* or out-of-the-dust-made man: hence HUMAN (or *e, humo*) BEING, namely Man, and the collective epithet *Man*kind.]

[2] See note upon page 240.

[3] [The threefold meaning of verse 12, seems, upon a little painstaking consideration, to be abundantly clear and explicit.

The simple energy of TRUTH needs no ambiguous interpreters.

Many, however, affect either not to see, or in reality fail to perceive, the threefold explanatory statement in detail, for such it is, upon the fact simply enunciated in v. 27, chap. I.

All commentators have not taken the same or similar views, as inferred from their discrepant interpretations, of the purport of verse 12. Some appear to have somnambulized by adventuring to guess, or to " expound " as it is styled, what they had not been at sufficient pains to first clearly and conscientiously comprehend for themselves. Or, it may be, that others who more reconditely comment upon the bearings of the controverted passage, take upon themselves to teach, what they have yet to learn.

Be that as it may, there are two sources of probable fallacy which deserve being indicated. First, since special punctuation came into fashion, instead of the previously general use of dashes,—the " pointing " of no two different editions of the bible in any language has been similar. Think of Stephens varying the *pointing* of every edition printed by him! As Dr. O'Toole would say, it was part of his "system"! Every grammarian must be aware, how materially the construction, sense, There is yet another ground, upon which, as regards the question in hand, an appeal may be made to the spirit of the opening chapters of the Mosäic Account of the creation; and what that ground is, must not be here passed over unnoticed.

Suppose that it were urged, which, however, is scarcely likely, that any appeal, for *scientific* purposes, to the *writings* of the Jewish Lawgiver if founded upon their alleged intrinsicly superhuman nature, is, on the score of philosophy, objectionable; then be it observed, that the volume called the Old Testament is confessedly the oldest authentic record, or history, in existence. This is indisputable. Hence historians and particularly chronologists, unless self-duped pretenders and sorry empirics in their respective departments of intellectual application, are assured of the necessity of being conversant with biblical facts and dates, as constituting so many landmarks, or points of departure, in their estimate of the trustworthiness of other alleged facts, epochs or eras, in relation to the occurrence of certain dubious events. *Adhere to the scripture standard!* is the first rule for chronologizing which is laid down, and whose throughout observance is insisted upon, by the dispassionate and judicious Hales.

Abstracting, therefore, from the higher force derivable from an appeal to the Pentateuch, as bodying forth trustworthy, because heaven-descended, premises, in the character of revelations to the human race in a state of exile,

and bearing of any composition, and particularly of figurative and imaginative forms of expression, depend upon appropriate or incorrect *punctuation*. Secondly, another source of probable fallacy and disagreement among theological commentators, (and disagreement in opinion is by no means the badge, exclusively, of the medical cloth,) may be imputable to the apocryphal separation of the passages of the books of the sacred MSS., which, in the originals, *read on*, without any such *breaks* as are now made, owing to the subdivision into chapters and verses.

Lastly, before leaving this subject of the section, it may be seen, and it is well to reiterate, that what is shown forth at some greater length in verses 20, 21, 22, 23, and above all in verse 7, of chapter II. is an explanatory travelling back, so to speak, upon the spirit of the 27th verse of chapter the first.

The important passage, however, as regards the confession of medical faith continued in the text, is the seventh verse of chapter the second.]

let the opinions of Moses, or say of the author of the book of Genesis, be here cited and taken into consideration, as showing forth the views which were entertained by a historian—by a rational speculating, and, as if, fallible mortal, forsooth—apart altogether from promulgations in his (Moses's) *alleged* character as OMNISCIENCE's chosen medium, or mouth-piece, while communicating with his fallen creatures, and heralding to them the Glad Tidings.

If then, the statement as to *how* the first human being was started into complex existence, at the creation of this planet, as represented in the opening chapters of the first book of the Pentateuch, be appealed to as *matter of history* —as the speculations, or say even the notions, of a historian; from such an abstraction being made—just as it were for concession's sake, and in such a manner too—it is presumed with confidence, that no rational objection whatsoever, can or will be made by any one, let the hue of his creed, or the shade and grade of his faith—as a physiologist, physician, theologian, or would-be man of science—be what it may. For even if the inspiration of such views were refused, and their trust-deservingness as revealed *premises* denied, surely neither Jew, Mohammedan, Gentile, Giaour, nor Disbeliever, could found a sustainable objection to the ideas of Moses, upon the interesting question in hand, being duly considered, as *postulates,* to say the worst of them, or, as historical opinions? And wherefore introduce the word "postulates," it may be asked? Forasmuch as, it cannot but be conceded, that the question as to *the manner* of the creation in general, and that of the parent of *generated* human beings, in particular, can only, by finite minds, be rationally reasoned upon, on the one or other of such grounds as these: namely, 1°, Either upon the Mosäic Testimony as propounding *revealed premises,* as again and again, and it can never be too often, said; or, 2°, Upon the earliest authentic recorded opinions extant, downwards to the present day; or, 3°, Upon grounds postulated, or conventionally agreed upon, for the sake of *scientific* argument.

Now, in either of these restricted, or conceded points of view, the opinions of the Jewish Lawgiver may be referred to, by physiologists, with every propriety. And upon the knotty point of *Vitality* being an entity or a nonentity, a cause per se, or a result, of organization—(a physiological difficulty in its own nature horizonless to the comprehension of the Biologist, and for whose solution, if thirsted after, he must, as to the fountain head, re-ascend to the ultimate problem of *how* the *first* human being was CREATED)—Genesis, to my mind, seems as fair a text-book, and Moses as legitimate an authority, as the Elements, Commentaries, Outlines, Lectures, or Speculations of Haller, Cullen, Hufeland, Barthez, Majendie, Adelon, Blumenbach, Alison, Elliotson, Copland, Prichard, Fletcher, *et hoc genus omne*, upon either the existence, or the disproval of the *doctrine* of "*a*" VITAL PRINCIPLE.

The question of "life" being the cause, result, or otherwise, of Organization—in its nature—scope—and purport, *is* a problem directly investigatable by disciplined Reason. But, the question of "vitality," or "vital principle," being the result, cause, or otherwise, of Organization, from its intrinsic nature and the nature of Mind, is, as to bearing—relation—and essence, a problem *not* directly solvable by unaided Reason, how disciplined so ever in the higher departments of physiology and psychology.

By all pseudo-physiologists who refuse to recognise the existence of *Vitality* in living organized bodies, let rigorously philosophical answers be conscientiously vouchsafed to such among other plain questions as the following, and afterward make and mark the application.

1°, Do they believe in the existence of MATTER; and why?

2°, Do they believe in the existence of what is conventionally called MIND; and why?

Why do materialists not withhold their acquiescence in the existence of Matter? Unless rebels to the laws of their own constitution, their assent is thus commanded.... Through the media of observation and experiment, certain phenomena *tell* upon their senses, and by the internuncial office of certain agents of the nervous apparatus, the several sensal impressions are transmitted to the brain-proper —whose living organization is excited to action by the agency of appropriately applied stimuli. By the combined result of these sensal and mental impressions upon the organs of the senses and brain-proper, sane human beings are enabled to say, that they not only sensally see, but mentally perceive, and are conscious of the existence of, a certain something, meanwhile in the absence say of a less objectionable title, called *Matter;* and the existence of this substantive Matter is inferred from an aggregate of certain phenomena, styled *extension, attraction, repulsion, divisibility*—which, by repeated experiment and observation, are invariably, in similar circumstances, displayed to them, as its qualities, properties, or powers.

Just so, likewise, is the existence of *mind* necessarily to be acquiesced in. *Mind* is the term summarily expressive of the workings of the organized living matter, called cerebrum, or brain-proper; the workings of the cerebral organism being evidenced by certain phenomena, styled *mental,* such as *attention, memory, comparison, judgment, reasoning.*

Now, by a very parity of evidence, physiologists, unless rebels to the First Principles of Belief and to the laws of their complex constitution, as rational animals, are unable to refuse a verdict for the conscientiously-believed-in existence of a certain something in living bodies, which, meanwhile, in the absence, say of a fancied less objectionable term, is designated *Vitality*—vital force, power, or principle. And what justifies such a "finding" or verdict? The evidence of the senses and the workings of the intellectual faculties, pronounce the existence of a *something,* in connexion with Matter, to be at the bottom of the otherwise unaccountable modifications of the known laws of *in*organic chemistry and of physics, per se; and proofs of which, otherwise, inexplicable modifications, *organized* living MATTER, uniformly presents.

The application, like the analogy, is obvious, irresistible, unanswerable. If there is evidence sufficient to command—first, the physiologist's assent to the believed existence of an entity, [Matter,] whose catalogue of qualities includes the phenomena declaratory of divisibility—attraction—repulsion, &c.: so, secondly, by another and kindred class of evidence, the existence of Mind, as a conventional term for a series of mental operations, such as Attention, Memory, Association, Judgment, Reasoning—the functions or attributes of a tangible organized living substance in action, called Cerebrum—must be conceded. So, too, thirdly, by a complex and mixed body of evidence, sensal and mental, must candid unbiassed physiologists admit the existence of *Vitality,* or a substantive something, which, somehow or other, [in connexion with matter in the *living* body,] modifies, sways, or alters—as *are* obviously and irrefragably modified, swayed, and altered—the ordinary laws of inorganic Chemistry and Physics.

No man can satisfactorily prove to others, although he may be self-satisfied as to, the existence of any one object in external nature. Deniers of the existence of vitality, cannot otherwise than experience difficulties, to the full as great in their own manner and nature, in seeking to prove the absolute existence of matter, in which attraction, repulsion, &c. are believed to be, but which, essentially, are only imaginarily inherent qualities, just as sound and color are, in bodies.

The study of Nature consists in the investigation of effects, not causes. For every effect or result, there must be a cause. Wherefore, then, are the ordinary laws of Chemistry and of Physics modified in living organized bodies? Are the differences in question the results of chance? Mark what Dr. Roget says—

"Every one who is accustomed to reflect upon the operations of his own mind must feel that such a conclusion is contrary to the constitution of human thought; for if we are to reason at all, we can reason only upon the principle that for every effect there must exist a corresponding cause; or, in other words, that there is an established and invariable order of sequence among the changes which take place in the universe.

"But though it be granted that all the phenomena we behold are the effects of certain causes, it might still be alleged, as a bar to all further reasoning, that these causes are not only utterly unknown to us, but that their discovery is wholly beyond the reach of our faculties. The argument is specious only because it is true in one particular sense, and that a very limited one. Those who urge it, do not seem to be aware that its general application, in that very same sense, would shake the foundation of every kind of knowledge, even that which we regard as built upon the most solid basis. Of causation, it is agreed that we know nothing; all that we do know is, that one event succeeds another with undeviating constancy. Now, if we were to probe this subject to the bottom, we should find that, in rigid strictness, we have no certain knowledge of the existence of any thing, save that of the sensations and ideas which are actually passing in our minds, and of which we are necessarily conscious. Our belief in the existence of external objects, in their undergoing certain changes, and in their possessing certain physical properties, rests on a different foundation, namely, the evidence of our senses; for it is the result of inferences which the mind is, by the constitution of its frame, necessarily led to form. We may trace to a similar origin the persuasion, irresistibly forced upon us, that there exist not only other material objects beside our own bodies, but also other intellectual beings beside ourselves. We can neither see nor feel those extraneous intellects, any more than we can see or feel the cause of gravitation, or the subtle sources of electricity or magnetism. We nevertheless believe in the reality both of the one and of the other; but it is only because we infer their existence from particular trains of impressions made upon our senses, of which impressions alone our knowledge can, in metaphysical strictness, be termed certain.

"Upon what evidence do I conclude that I am not a solitary being in the universe; that all is not centered in myself; but that there exist other intellects similar to my own? Undoubtedly no other than the observation that certain effects are produced, which the experience I have had of the operations of my own mind lead me, by an irresistible analogy, to ascribe to a similar agency, emanating from other beings; beings, however, of whose actual intellectual presence I cannot be conscious, whose nature I cannot fathom, whose essence I cannot understand. I can judge of the operations of other minds only in as far as those operations accord with what has passed in my own. I cannot divine processes of thought to which mine have borne no resemblance, I cannot appreciate motives of which I have never felt the influence, nor comprehend the force of passions never yet awakened in my breast: neither can I picture to myself feelings to which no sympathetic chord within me has ever vibrated.

"Our own intelligence, our own views, and our own affections, then, furnish the only elements by which it is possible for us to estimate the analogous powers and attributes of other minds. The difficulty of applying this scale of measurement will, of course, increase in proportion to the difference between the objects compared; and although we may conceive that there are powers and intelligences infinitely surpassing our own, the conceptions we can form of such superior essences must necessarily be indefinite and obscure, and must partake of the same kind of imperfection as our notions of the distances of the heavenly bodies, however familiar we may be with the units of the scale by which those distances are capable of being expressed. When, on the other hand, the objects contemplated are more within the range of our mental vision; when, for instance, they are phenomena that we can assimilate to our own voluntary acts, and in which we can clearly trace the connexion between means and end, then does our recognition of the agency of intellect become most distinct, and our conviction of its real and independent existence become most intimate and assured.

"Such is the kind of evidence on which rests our belief of

[illegible]
VICTORIA [illegible]

the existence of our fellow men. Such, also, is the foundation of our assurance that there exists a mighty Intellect, who has planned and executed the stupendous works of creation, with a skill surpassing our utmost conceptions; by powers to which we can assign no limit, and the object of whose will is universal good."[1]

With a few paragraphs by way of commentary, I now present tabular expositions, illustrative of leading points in the medical creed, dwelt upon in this section.

When the inquiry is, by the Biologist, carried backward, in the mind's eye, from the agency by which the organization of each species is continued, namely, by generation or *conservation*—which properly signifies *continued* CREATION,[2] as effected by each special parent,—when, at length, the question of the causation is ultimated, just as in the case of the *quo modo* of the production of the first organized human being, the problem presents itself, *How*, or, *in what Manner, and by what Means, was the* first *of* every *species of Plant, and Moving Creature, whose seed is, respectively, in itself,* CREATED?

Although the Mosäic account of the generation of the heavens and of the earth, bears chiefly upon the purpose and manner of the Creation of MAN, when archetype-Adam, in the image of the great First Cause, was commanded from chaos into being; yet, as *organization* is common to the entierty of the bodies constituting the groupes of Plants, Brutes, and Human Beings, (a scientific truism, which none will dispute,) *and* as ALL were *formed* out of *the* DUST *of the ground,* there is nothing either repugnant to common-sense, unwarrantable as a matter of analogical inference, or which can be said to offer violence to the most prudish reasoning in science, to proceed upon an inferred essential similarity, if not identity, as to the elementary constituents, by the putting together of which, when exchaosed during the third, fifth, and sixth "days," the *organization* of the *first* of every species of Plant and Brute, as that of Man himself, was severally effected.

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[1] Chapter on FINAL CAUSES, Bridgewater Treatise, *Veg. and An. Phys.* Op. Cit.

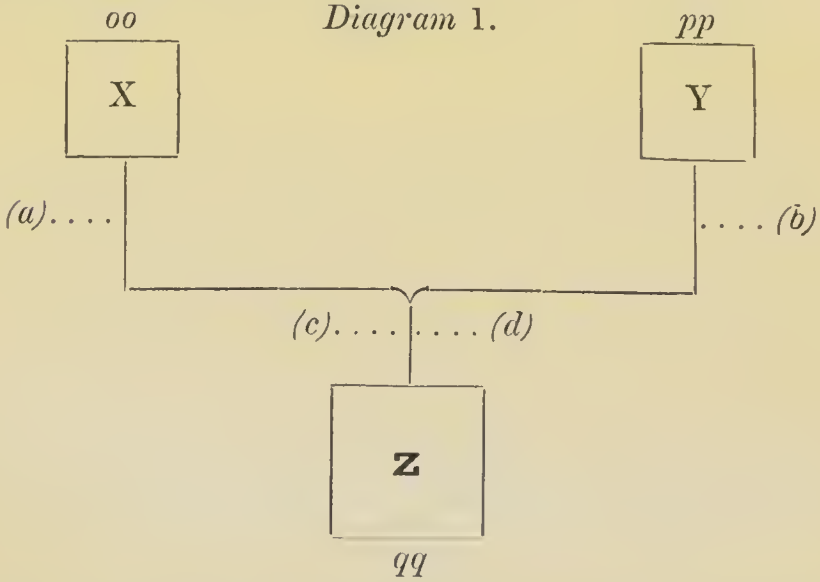
[2] [*Conservation.* This word, as it occurs in the text, is employed in the sense of *continued* CREATION. The reader's attention is solicited to it. This is not a novel, but a revived signification of a term, which is so every way philosophical and expressive, that it will be matter of some regret, if, through a continuance of accidental disuse, it be allowed to altogether go asleep.

In the preface to the *eleventh* edition of the celebrated RAY's work, published upwards of a hundred years since, entitled "*The Wisdom of God manifested in the Works of the Creation,* in two parts;" &c., this powerful old pioneer to the writers in the Bridgewater Treatises, observes. . . . " by the Works of Creation in the Title, I mean the works created by God at the first, and by him conserv'd to this Day, in the same State and Condition in which they were at first made; for *Conservation* (according to the *Judgment both of Philosophers and Divines*) is a *continu'd Creation.*"]

Prior to surveying the series of elements and characteristics, constituting the generalized kingdoms of organized living beings, let the reader consider the forming of organization as an abstract general question, *i. e.* apart from the particular organization of a Plant, Brute, or Man.

By way of illustration:—

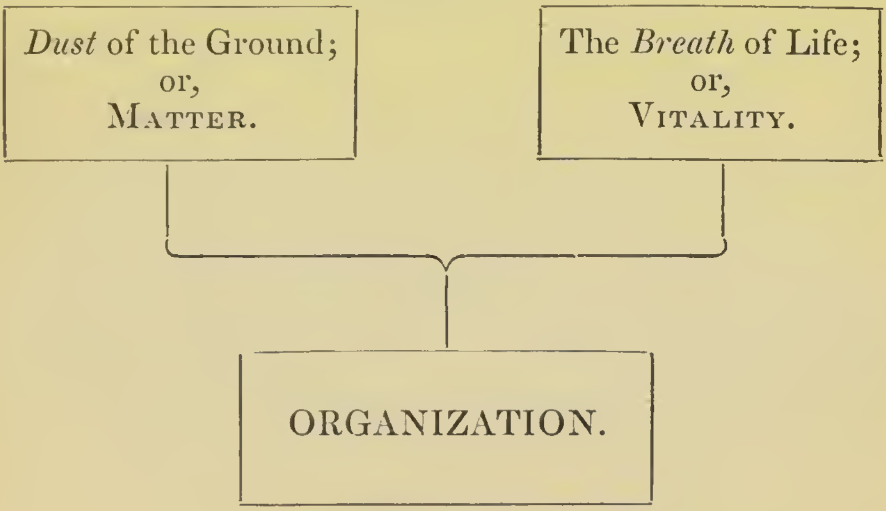
Diagram 1.



Suppose a chemist to put a definite quantity of an *alkali* X into a glassful of water, say *oo*, and a definite quantity of an *acid* Y into another glass, *pp*. Next, suppose the manipulator to simultaneously turn the stop-cocks, at *(a)*, *(b)*, so that X and Y shall run out of the glasses along the tubes, *(c) (d)*, and commingle in the common reservoir, *qq*. What will be the result? The *tertium quid* fluid, for so it may be characterized, has not the properties of an acid, as one of its constituents, Y, had, while in *pp*, nor has it the alkaline qualities which its other constituent, X, had, while detained in *oo*. The fluid body Z, in short, has characteristics peculiar to itself. Its behavior, upon being tested in a liquid state, and the remains obtained by evaporation, declares it to be a *neutral* Salt.

The youngest mind will now distinctly comprehend the second diagram, which is intended to symbol forth, *how* organization may be supposed, and, as I believe it, to have been brought about, at the Creation of the World.

Diagram 2.

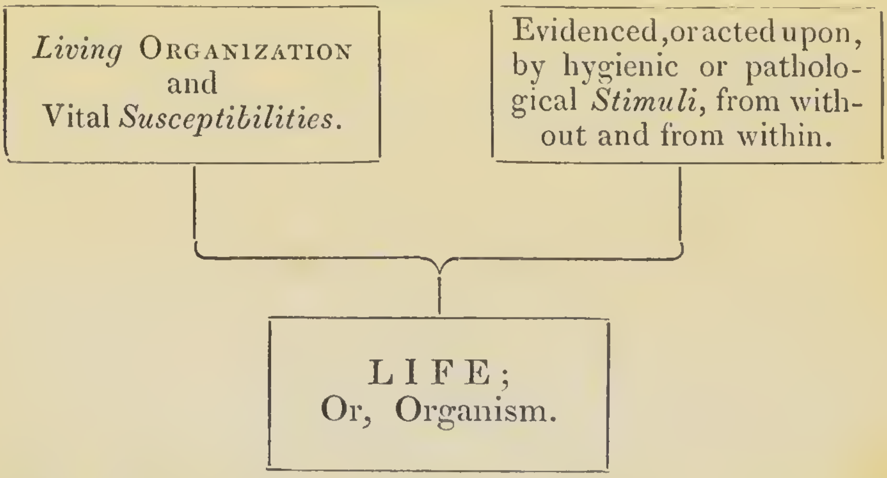


As is known to philosophical botanists, the little *organized* body called a *Cellule*, is the type of the organization of the entire vegetable world. Diagram No. 2 illustrates the here-defended view of the constituent elements of the created, and afterward conserved or begotten, organization of the cellule, considered no longer per se, but as a fractional constituent, with myriads of collocated cellules, constituting the integral organization of the vegetable germ.

Two great catholic functions—Nutrition and Reproduction—characterize organized living matter in action. Plants are organized matter. Plants, therefore, while living, manifest the possession of the functions aforesaid. Vegetable IRRITATION, (a function, so to speak, dependent upon the exercised *susceptibility*—Irritability[1]—to take on a certain series of vital actions, and which are dependent upon the state of vegetable organization,) demonstrates to the observer, that plants are living beings. No *nervous* organized MATTER being diffused through their structure, plants are hence *in*sentient and *in*conscious. Cognizant of this fact, physiologists, *a priori*, not only would not expect any evidences of the possession, by vegetables, of such functions as Sensation, Volition, or manifestions of general Mind, but upon the strength of such fact, as a premiss, they would also affirm, and syllogistically prove, that without nervous matter there can be no sensal, and no mental phenomena, manifested by an otherwise, confessedly, *living* organization.

The application of stimuli, from without and from within, is peculiarly responded to, by organized living matter. The sum of such response, throughout the functions of the organs and apparatus of organized bodies, is expressed and understood by the term *life*, which is, a result. Thus—

Diagram 3.


Living ORGANIZATION and Vital *Susceptibilities*.
Evidenced, or acted upon, by hygienic or pathological *Stimuli*, from without and from within.
LIFE; Or, Organism.

Having illustrated the presumed elementary constitution of Organization in general, as created and conserved; and the idea attached to Life, with the sense sought to be conveyed to others by the term,—here follow, in addition, Diagrams 4, 5, and 6, respectively intended to illustrate the here believed radical constituents, of Vegetable, Brute, and Human Organization*ism*.[1]

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[1] [*Irritability* is said to be *a* property, quality, or attribute, of *organized* living MATTER, just as *attraction* and *repulsion* are said to be qualities, or attributes, of *in*organic Matter.]

Diagram 4.

SYNTHESIS OF VEGETABLE BEINGS.

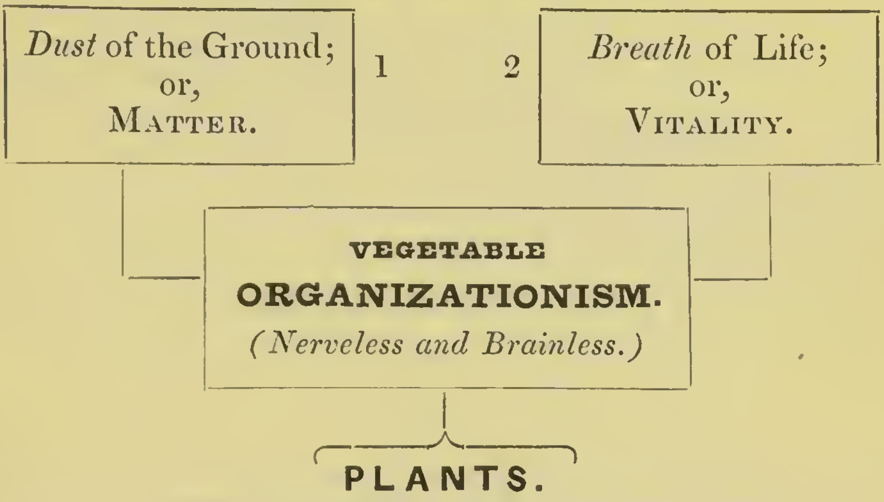
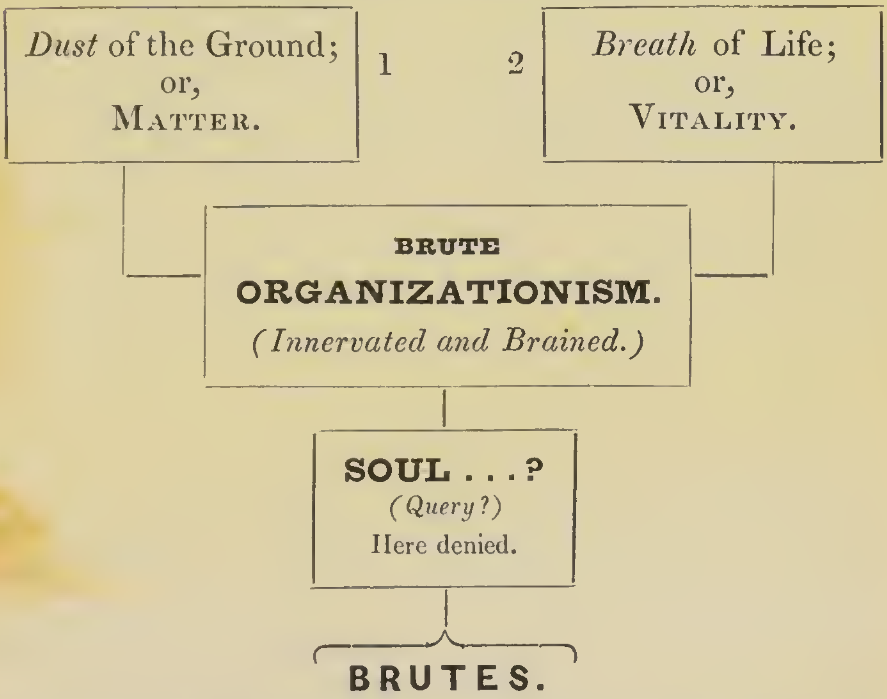

Dust of the Ground; or, MATTER.
1
2
Breath of Life; or, VITALITY.
VEGETABLE ORGANIZATIONISM.
(*Nerveless and Brainless.*)
PLANTS.

Diagram 5.

SYNTHESIS OF BRUTE BEINGS.


Dust of the Ground; or, MATTER.
1
2
Breath of Life; or, VITALITY.
BRUTE ORGANIZATIONISM.
(*Innervated and Brained.*)
SOUL . . . ?
(*Query?*)
Here denied.
BRUTES.

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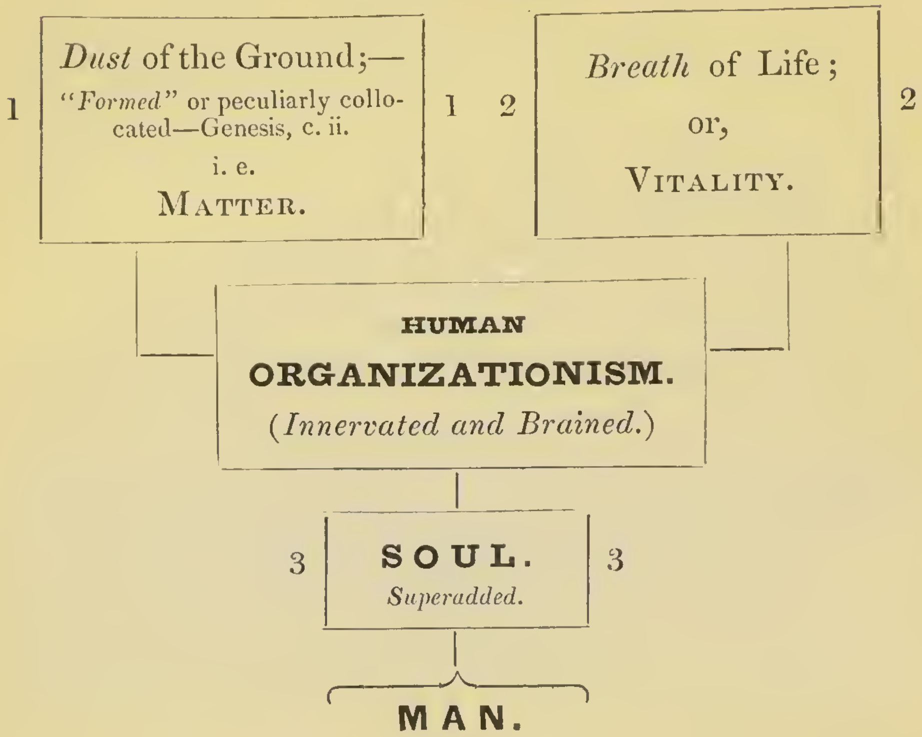
[1] [*Organizationism* is used throughout the exposition of this creed, to signify the Organization *alive* or quick, and ACTIVELY and *passively* resisting, or countervailing, the laws of Gravitation and of Affinity—or the laws, say, of Ordinary Physics and Chemistry—in marked contradistinction to Organization *dead*, or the organic *remains*—PASSIVELY yielding to the ordinary laws of Physics and Chemistry.]

Diagram 6.

SYNTHESIS OF HUMAN BEINGS.



Genesis, chapter ii. verse 7.

[I. And—The Lord *formed* Man of the DUST of the ground . . MATTER.

II. And—*Breathed* into his nostrils the BREATH of *Life* . . VITALITY.

III. And—Man became a *living* SOUL . . . . SOUL.]

Man's Organization.

I. Materialized. II. Vitalized. III. Souled.

According to the above display (Diagram 5) Man, is a Unity of a Trinity of Attributes; or he is a TRINITY OF ATTRIBUTES IN UNITY.

General Summary. 1°, An essentially required medium of the manifestation of sensation, perception, consciousness, volition, reasoning, &c. is, organized living *nervous* MATTER in the form of internuncial cords (nerves) and a brain-proper or cerebrum. The organization of Plants, as has been shown, (p. 257, Diagram 4,) is nerveless and brainless.

Vegetable organizationism, therefore, neither declares the existence of *sensation*, nor *can* phenomena forth, any of those imaginarily inherent attributes, characterized by the epithet *mind*.

2°, Brute organization is innervated and brained. Hence living brutes *feel*, *perceive*, *will*, *remember*, *compare*, *judge*, *reason*,—in a word, evince proofs that they possess *mind*.

What *is* "mind?" It may be said to be one of those ambiguously used terms, which, not a little, perplexes, old and young; and owing to the unprecise employment of which, many *readers* are unaware of the real source of the obscurity of their own ideas,—their misapprehension of their *authors'* meanings and argumentations; and their inability to account for, or to reconcile, glaring metaphysical and logical discrepances, apparent and real. Several use *mind* and *soul*, as if they were convertible terms! Others contend for the existence of what *they* term "Mind" as a separate immaterial entity, apart from the organizationism of brutes and man. Be the undetermined truth *in re* what it may, *Mind*, like the epithet *Life*, is here used, as it is understood, merely as an abstract and most appropriate designation for a generic *life* of the brain-proper: in other words, just as LIFE is used to summarily denote the general phenomena of the whole living organization *in action*, so MIND is a collective term, expressive of perception, memory, judgment, reasoning, and other attributes, or functions, of the cerebral organism. Where there is no living nervous matter, called *brain*, in action, neither the observer of others, nor the Doddridge-like self-examinator, can have data supplied, upon which to verdict the existence of the result—"mind," as proven. To assert the separate existence of an immaterial somewhat, called *mind*, because of appearances of the existence and operations of such a principle, apart from organization (but where?)—*in the* universe *external* to man!—is, to say the least of the hypothesis, in strictness, *foreign* indeed, to the only rational scientific subject of inquiry: namely—Is human, or is brute, mind, a *principle* existing independently of, yet in connexion with, an organized living nervous mass, called brute brain-proper, or human brain-proper?

Where there is evidence of Mind, living Brain in action exists. Where there is no Brain and no cerebral organism, to the psychologist, there can be no manifestations of the *result* "mind," or of the alleged essentially self-existing *principle* of Mind.[1]

Within the square appended to "Organizationism," of *Diagram* 5, (p. 257,) the reader will have noted, that a query, expressive of dubiety, is included.

Have brutes *Souls?* It would take volumes to critically exhaust the literature which has been offered upon this single question, in works extensively circulated in the french *tongue,* and in the most universally spoken and known of modern languages—the british. It would be inexpedient and profitless to occupy space, by entering, at any length, upon the more showy than solid merits, of the arguments advanced by those who have labored the affirmative:—namely, that brutes *have* souls. Upon the general question, it is proposed to detain attention by a mere paragraph or two, of rapid remark.

Great reliance seems to be placed upon the alleged admission of doubts hanging upon the minds of certain esteemed Divines of the Established Church, respectively, of Scotland and England. The dubiety in question, has, as in other cases of judicial doubt, been *mercifully* construed in favor of the assertion that brutes *have* souls! Supposing it true, that it cannot be disproved that brutes possess soul, is it the less true, that it cannot any more be proved that they have? And upon such a view, there cannot, correctly speaking, be said to be an end, where, in very truth, to an argument of such a nature, it ought rather to be said, that there is no beginning.

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[1] [Possibly it may surprise the student if unacquainted with the data and profundity of the reasonings advanced by some physiologists, that, though unmitigated materialists, without hesitation, sternly deny the existence of *vitality* as a principle or power, essentially distinct from mere matter, or as associated with living matter organized—they should nevertheless most *faith*fully argue in favor of the separate existence of MIND, as an essentially distinct principle, apart from brain in action!

How far such a mode of argument bespeaks the confounding together of *soul* and mind, may be safely left, for psychological readers to adjudicate. But, if "mind" be essentially, a per se distinct principle, in the constitutions of brutes and man, then the play of vegetable organizationism, is—*duet*-like,—that of brutes, (even denying that they have *souls*)—is a *trio* at the least, if not probably a *quartette!* And finally:—living man, with first matter, secondly, vitality, thirdly, soul, and fourthly, *mind,* is, a *quatuority,* (so to say,) not a limited trinity, of attributes in unity.

At this interesting rate of principle added to principle, sceptical *savans* must make a liberal discount from their narrowly reckoned disbelief in Dr. Prout's "*creations,*" of an ascending series of vital principles, or organic agents.]

As employed in Sacred History, and by Scriptural Authorities, few words have a more porteus-like latitude of meaning, than "soul" and "spirit." It may, however, with well-grounded confidence, be asked, if it is not only possible, but highly probable, that when the soul or spirit of brutes is alluded to, the understood and designed acceptations of such terms, are similar to those of the phrases—*rational* animal SOUL, and *vegetative* SOUL, as employed by certain physiological writers, of yore? Let the reader turn to Ecclesiastes, and he will (by the tenor of a passage alluding to the similarity of the fate of brutes, and that of Man himself, *as Man—i.e.*, of all of his constitution which is made from the dust of the ground) see this sufficiently clearly.[1]

Solomon explicitly, as the foot note shows, alludes to the animal soul, or spirit, shared by Man *as an animal*, like the vegetable soul or spirit (the *manifestations* of vitality in union first with nerved, and secondly with nerveless matter) perishing or dying, when its constituents are, in obedience to the laws of gravitation and affinity, rehurled to kindred dust, *after* DEATH. But the penitent and

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"The sons of men might see that they themselves are beasts. *For* that which befalleth the sons of men, befalleth beasts.—*One* thing (death) befalleth them: as the one dieth, so dieth the other; yea they have all one *breath*, [*vitality*;] so that a man hath no pre-eminence above a beast. All go into one place; all are of the dust, and all turn to dust again."—"Who knoweth the *spirit* of MAN that goeth UPWARD, and the *spirit of the beast* that goeth DOWNWARD *to the earth*."—*Eccles.* c. iii. verse 18-21.

philosophical King, most distinctly alludes to the imperishable spirit—*Soul*, properly so called, of man "which goeth upward," in contradistinction to the perishable *downward*-going, merely brute, spirit. Look at v. 21, closely. Here, as ever in the end, the simple energy of truth needs no ambiguous interpreters.

Soul is an immateriality distinct from matter; but not so Mind, any more than Life, otherwise than as an abstract term, is distinct from living organization. There are undeniable proofs that brutes reason, and that, too, essentially, though not to the same extent, just as man reasons. Between the degree, at the least, if not the nature, of the intellectual powers of the *lower* animals, and that of those of Man, the characteristic evidence is various and bold. Allowing that brutes have a language, we still can observe nothing in their conduct to encourage or warrant the inference, that they are capacitated to form abstract notions, and impart an abstract conception to their fellow brutes, as to the bearing and result of the succession of their ideas, as man pre-eminently can, upon abstract mental images, to *his* fellow-beings.

Although it is here conceded to the full, for it would be vain to deny, that brutes are endowed with, and amply evidence the possession of, *mind*,—it by no means thence follows, that they have soul, unless, to be sure, soul and mind are identicals! Soul and mind must needs be identicals according to the tenor of the views advocated by many. But of this, more in detail, a little onward.

There are innumerable other well-marked distinctions between the endowments of man, and those of the brutes of the field, *which perish*. The ratiocinations of each brute advantage itself only. The dog, truly, has but its day. But the result of man's ratiocinations are cumulative. He can found one syllogism upon another, and so on according to the functional capabilities of his cerebral organization. Next, through the medium of articulate speech, Man can traditionally record his experience, or leave the systematized results of his observation, as a *litera scripta*, for the good of his fellow-creatures. Individual brute observation and experience—the results of brute reasoning and education, perish with the merely animal organism (animal *soul*) of the individual brute-brain. The offspring of the Camel of the desert, of the sagacious Elephant,—of the Horse, the Dog, and the Beaver,—cannot *start,* so to speak, upon the strength of their sires' experience.

How strikingly different, is it not, with the progeny of the in-the-image-of-God-made! Think of the peerless treasuries of human-recorded human experience! Think of the communication of ideas by writing and printing. Think of human philosophy being taught by *precept!* Think of the experience, not merely of a father heritaged to his children, but the catholic experience of millions of the human race, bequeathed, throughout a series of mellowing ages, and available to the souled creature who rationally cultivates his ennobled susceptibilities, and who brings them, if disciplined, twice armed with acquired power, to effectively bear upon such a blessed mine of ameliorating knowledge.

Comparative differences in mental susceptibility and power, not only serve as grounds of distinction between brutes and man, but also characterize the relative intellectual superiority or inferiority of individual men. There are notable grades of human intellect as to *power,* from that of the zero-like capacity of the jabbering idiot—the manifestation of whose brain in action, is as drivellingly pellucid, as his significantly pellucid saliva—in degree upward to the graspingly far-seeing, the vigorous and subduing reach of thought, evinced by the framer of the Koran; by the hypochondriacal bigotedly-firm-of-purpose Protector; and, that which ministered to the gratification of the colossal ambition, growing by what it fed on, till finally self-destructive, of *him,* the comprehensiveness of whose soaring mind entitles him to dispute the precedency in the, by-him-completed, TRIUMVIRATE OF UNEXCELLED INTELLECTUAL GREATNESS.[1]

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[1] [Mohammed, Oliver Cromwell, and Napoleon Buonaparte.]

In addition to the specially characteristic faculty of Abstraction distinguishing the capabilities of human from brute mind, there are other great *functions*—those of Judgment, Reasoning, and above all of *Imagination*.[1] The last of the three is eminently entitled to be considered by far the noblest and most uplifted of the functions of Man's otherwise merely Animal or Brute Mind, being humanized, nay *Deified*, by the commingling influences of the SOUL, superadded to his previously vitalized, nerved, brain-endowed mechanism, in the manner sententitiously revealed.[2]

These remarks have naturally brought me to further touch, *sicut canis ad Nilum bibens et fugiens*, upon the prime differences in the respective natures, of the constitution of Man, and that of the brutes of the field which perish. Let the marshalled items in Diagrams 4, 5 and 6, be again reconnoitred.

Nutrition and Reproduction are common, as has already been twice said, to all organized bodies. In vegetables, *(nerveless and brainless,)* the LIFE of Plants, called *vegetable*

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[1] Professor Alison, ON THE MENTAL FACULTIES, p. 223—*Op. Cit.*

"The highest and most characteristic faculties of the mind are those of imagination and reasoning; by the first of which, we understand the power whereby the mind voluntarily combines various of its conceptions and abstractions, and forms a visionary creation of its own, differing from any thing that has been presented to the senses; and by the second that whereby the mind voluntarily connects together successive acts of judgment on the relation of things; and so adapts premises to conclusions in matters of speculation, and adapts means to ends in practice....

In the conduct of life, it is most generally, by an exercise more or less complex, and partly voluntary, of the faculty of imagination, that we propose to ourselves objects of pursuit; and then by an exertion, more or less sustained, of the faculty of reasoning, that we adapt means to the attainment of these ends." *Ibid.* p. 231–2.

[2] [*Judgment* and *Imagination* are styled FUNCTIONS in the text. Modern physiologists justly draw a distinction between *action* and *function*. Thus, ACTION is the play, or organism, of a single ORGAN; *chymification* is the Action of the stomach. Whereas, *function* properly expresses, and is alone applicable to, a congress—to a one-purposed result, of the *concurring actions* of two, or of several organs. For example, the FUNCTIONS of Circulation, Respiration, Digestion. Now let psychologists judge, whether judgment and imagination are cerebral *actions* merely; or, rather, as is here believed, *functions*, effected by an *associated* working together of *many* of the individual organs of the brain, to a *common* end.]

soul, is dependent upon the susceptibility to be *irritated*, and which, in turn, depends upon *Organic* irritability—dependent, in turn, upon *vital*ized matter, or matter *organized and living*.

Through, or associated with, similar organized living matter, but collocated or formed in the mould of a brute, let us conceive Nerves and Brain superadded, as organized living matter, and we have an immediate change produced in the active behavior, as much as in the passive appearance, of plants and animals. Need we wonder, then, at the phrase, so harped upon by old and quaint writers, "*animal* soul," whereby is truly expressed, nothing more than the organizationism, or history of BRUTE *vital* existence!

Now, just so, the *existence* of diffused *nervous* MATTER and BRAIN, as so much lath and plaster, in conjunction with *vital*ized *dust of the ground*, or Organization—(see Diagram 2,) *is* at the bottom of this otherwise singular modification of the lives or *souls* (or, in other words, of the organizationisms) of animals alive, as distinguished from vegetables alive —or merely *irritable* creatures. . . . Nor is it less so, merely, because (in addition to the essentially universal organic functions of nutrition and conservation being *modified*) the *manifestation* of other functions—namely Sensal and Mental, might *a priori have been expected*, by very reason of the *superadded collocation of* NERVOUS *organized* MATTER. And because nerves and brain, hence *sensation*, *perception*, *consciousness*, *judgment*, *reasoning*. In short, evidences of MIND or of the organization of the nerves and brain *in action*, characterize the nerved, brained, vitalized dust, or compound, called BRUTE, as distinct from PLANT.

Here let us follow out the analogically applied bearing of the facts just submitted in the foregoing naturally complex paragraphs, the reasoning, be it observed, upon which the appended application is grounded, being supported by trustworthy data, carefully ascertained.

Just, on the one hand, as the diffusion of organized nervous matter superadded to merely irritable organizationism—as that of Plants, (Diagram 4)—not only alters the phenomena of the functions of Nutrition and Reproduction, but originates, as if, *new* functions—ANIMAL, namely *sensal* and *mental;* so, equally wonderful, is the striking modification of the animal and organic functions, and of the consequent and not to be imagined *new* powers and awe-inspiring endowments, which are, literally, as if inspired, when THE SOUL, that emanation from the deity, is ex-heavened into the previously *vital*ized in*nerv*ated and BRAINED organizationism, in Human form. *Then,* indeed, the *soul*ed organization is IN THE IMAGE OF GOD ! Truly—

'TIS A DIVINITY THAT STIRS WITHIN US !

Brutes have nerves and brains. Brutes have MIND; but have they, as Men have, immaterial heavenward-bent immortal SOULS? Although there is no express revelation upon the matter, to say the least, it is possible; but,—from all that is seen and inferred from their conduct,—highly improbable.

Part VI. must now be brought to a close. An illustrative reply to this, on the student's part, somewhat self-suggesting query, must first be offered.

Suppose, then, the student to inquire,—" How do the " creeds of medical MATERIALISM and VITALISM, which " have made, which do make, and which *will* make, *such* " *a noise in the Universities and School of Medicine—in* " *Medical, and Ecclesiastical, and even in Legal Journals;—* " *in standard works;*—and *whose indirect and direct in-* " *fluences,* directly and indirectly, *influence the progress of* " BEDSIDE INSTRUCTION, and, therefore, the *progress of* " *sound* bed-side *or* PRACTICAL MEDICINE. . . . How do " *such* creeds stand towards me, or affect my interests? Or " how should they, in connexion with the confession of " medical faith, entitled VEGETABLE, BRUTE, AND HUMAN " ORGANIZATIONISM, direct my research—as a MEDICAL " PRACTIONER?"

Let the student be an Eclectic—a moderate or a furiously ultra Materialist;—-studier of death or Expectantism;—a lukewarm, tepid, hot or boiling-over Vitalist;—a popularized Hippocratist, Cullenian—Brunonian, Abernethyan; or an Abernethyan-Sangrado-Broussaiist, or a transcendental disciple of the Hufeland school of Physiatricy, or of the infini*decimal* creed of Homoöpathy—as a rational practitioner, he must be—an ORGANIZATIONIST. Like the honest and philosophical follower of the Knight of La Mancha, after patiently concluding the expositions of the respective Codes of belief, the reader, most probably, will be disposed to mark the deeds of the day, neither with a *black* nor with a *white* stone, as indicative of his assent to the creed of ultra-Vitalism, on the one hand, or to that of medical Materialism—agreeably to the tenets of which, the existence of vitality, as a substantive something, is denied—on the other; but, if he will be ruled by the preceding arguments and forecited extracts, faithfully submitted,—with the *good brown ochre* of ORGANIZATIONISM. As bishop Warburton might have said, "such is the complexion of human life in general!" [See motto, p. 191.] Example, even though abstract, is better than declamatory precept, though practical. It will, therefore, be as well to take a case. *Savans* talk of a *dyspeptic* STOMACH, so, suppose a patient to present himself to the practitioner with a *conjunctivitis*ed EYE. Be the creed of the Savan, or the "man of facts," what it may, it is to be presumed that he desires to, if possible, convert, pathological, into healthy and healthful action, and "cure" his patient *cito, tute, et jucunde.* But, through the instrumentality of what agency of the living machine, or, of its organical parts?

What *faith* is at the bottom of the recognized, proposed-to-be-followed-up *indication,* when, insinuating Guthrie's *Nitrate of Silver Ointment* below and between the lids? If a VITALIST, does he think the medication will work a cure, by *telling* upon the *vitality* of the tissues of the eye? If a dogmatical ULTRA-MATERIALIST, does he, as many do, laugh in his sleeve, and think how preposterous it is, for the Vitalist to dream of *vitality,* when he might *see,* by the induced changes,—in great measure observable after introducing the ointment in question—that the cure is effected, by acting upon the *Matter* of the membranes of the apparatus of vision?

Whoever has read this sixth section, with ordinary attention,—whoever, as an advanced student, will but reflect for a little, will readily perceive, that the views of the ultra-Vitalist are scarcely so absurd as those professed by the even moderate Materialist,—whose dogmas emanate, solely, from the confined physiological notions with which his mind, as a theorist, is night-hagged.

The "virtues" of nitrate of silver ointment, act beneficially, by influencing neither the vitality *per se*, any more than the matter of the affected tissues. The judicious and physiologically well-educated practitioner feels confident, that his remedy can neither act upon Vitality, nor matter, *separately*, but *upon both together*, as he finds them *in the living human body*, in conserved, connate or born-together connexion. . . . *The rational practitioner*, therefore, *must be, an* ORGANIZATIONIST.

To recapitulate. Among general points submitted and defended, throughout the foregoing imperfect exposition of The Creed of Vegetable, Brute, and Human Organizationism, are these:—

I. Life. 1°, *That the question of* "life," *being the* cause, result, or otherwise, *of Organization, in its nature, scope, and purport,* is *a problem* directly *investigatable by disciplined* Reason.

2°, That, the term *Life*, like Effervescence, Music, Mind, &c. is alone with propriety used, by physiologists, as an abstract summary expression.

3°, That Organization and Life *genera*ted, suppose Organization and Life, as genera*tors*.

4°, That Organization and Life are effects—results, not causes. (See Diagrams 2 and 3, pages 255–6.)

There can be no Life where there is no Organization. Life is the *result* of Organization acted upon: it is, *Organizationism*, or, the susceptibilities of the Organization *in action*. Diagram 3, p. 256.

5°, That, in a certain sense, there is no paradox in maintaining, that Organization and Life—*quoad* the GERM dislodged from its relatively passive state in the ovary, and the way thereby paved for its independent existence out of the body of the female parent, as determined by the duet-like venereal orgasm—are *simultaneous.*

II. VITALITY. 6°, *That the question of* Vitality or "Vital Principle," *being the* result, or cause, or otherwise, *of Organization,* from *its intrinsic nature, and the nature of the human mind,* is, *as to bearing, relation, and essence, a problem* not directly *solvable by unaided* Reason—*how disciplined soever in the higher departments of physiology and psychology.* See, continuously, from page 241 to page 249.

7°, That, a certain something, known to us by its effects, and meanwhile named, *Vitality*—exists. *See* remarks submitted from p. 248, onward to the close of the first paragraph of p. 253.

8°, That, like Matter and Soul, *Vitality* is used *substantively,* and not as denoting qualities or properties of any substantive subject of attributes or properties; nor to be understood as employed by physiologists, as the abstract terms summarily denoting aggregates, such as Effervescence, Music, *Life, Mind,* are employed by them. See, inter alia, note, at page 232.

9°, That, strictly speaking, the Vital Principle is neither the *result,* nor the *cause,* of Organization.

*** Though Dr. Prout has asserted, that the living principle is *not* the *result,* but the *cause,* of organization, very few, if indeed any, physiologists, can agree with such an opinion for such reasons, perhaps, among many others, as the following:—

The chemist knows, that the coming together of an acid and an alkali, in definite atomic quantities and certain conditions, is essentially required, to the end that a series of actions and reactions may be set up and gone through, before the *tertium quid,* or result of such association,—say a *neutral* SALT,—is produced. Very well. Just as the being made of a neutral salt, as shown by the Diagram at page 254, depends as much upon the alkali as upon the acid, and as much upon the acid as upon the alkali,—so, by a parity of reasoning, *organization* can no more be said to be the result of, *i. e.* caused by, the Vital Principle, *per se:* for, exactly as in the case of the neutral salt, so the producing of the living organization of plants, brutes, and man, to all ends and purposes, is obviously, as the Diagram at page 255 displays, the result—as much of the *Matter* per se, as of the Vitality *per se.* Vitality per se, cannot, by any sane disciplined Mind, be supposed equal to the producing of a tertium quid, any more than Matter, by itself. But, what neither *apart* could give rise to, the *two together,* started into association, have produced. Accordingly, it is the conjunct, connate, or born together, *conserved* connexion of *vitality* and *matter,* which radically constitutes the specific ORGANIZATION of every organized species of being, having a place in either of the two sub-kingdoms of the ORGANIC CREATION.

10°, That, vitality, *a,* like matter, *b,* and ORGANIZATION as a simultaneous or conjunct *result* of their union, *c,*—the consequent property of organic irritability, *d,* and the functions of Nutrition and Reproduction, i. e. Conservation, properly so called, *e,* (see note 2, page 253,) are common, or extend to *all* organized living beings, without exception.

11°, That, just as regards organized living beings, there can be no vital FUNCTION where there is no aggregate of ACTIONS, and no *action* where there is no *organ,* and no ORGAN where, ultimately, there is no *vitality* and *matter* in created or conserved connexion,—so, there can be no SENSATION, and no Perception, Volition, Consciousness, Memory, Judgment, Imagination, Reasoning, where there is none of that ORGANIZED MATTER, called NERVOUS, and a Brain-Proper, in action. Hence, as there is no *nervous* organization, there can be no nervous organization*ism,* in other words, no SENSAL and MENTAL *actions* and *functions,* evidenced by Plants. And herein is determined the characteristic difference between the complex Mechanism and Organizationism of Animal Beings and those of Vegetables.

12°, That all Animals possess nervous matter and its modifying attributes: that Man is an Animal, but that he is also a *Human* Being, the adjective in italics being used, not in its strictly etymological, but in its modified or transitioned meaning—that is to say, as synonymous with, or as expressive of, the phrase, in-the-image-of-God-made.

13°, That Man's transcendant characteristic, of being, though an Animal, made "in the image of God," essentially depends, on the superaddition of an imperishable, to be heaven-wended, Soul, temporarily enshrined, during its pilgrimage of exiled probation, in the perishable brute Temple of the Body, destined to be rehurled to its kindred dust, out of which in the beginning, or during the course of "the sixth day," the elements of its archetype, were ex-earthed—"formed," and vitalized. *Such is the* fiat!

Yes! What but the consecrating divinity which stirs within us, can be at the bottom, as a modifier, and can afford an explanation of those otherwise unaccountable differences subsisting between our complex, imperishable better nature, and that of the Brutes of the field which perish—but between which and ourselves, as animals elemented from the ground, organized and endowed as they are with a nervous system, with its sensal and mental attributes, there are, consequently, in many respects, so much in common? Assuredly " there *is* a latent principle somewhere in our frame—latent as an element, but of fearful activity as a cause, which breaks to pieces the crucible of the alchemist, and defies being bound by the chain of any general rule, that the coarseness of human speculation has yet devised."[1] How, otherwise, account for Man's earth-leaving, heaven-directed, longing after immortality? Can it be upon a quicksand of wild spectral hallucination, that the assurance is grounded, of there existing an hereafter!—of there being truly an Elysium Eyry, whither, after the earthly sepulture of the

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[1] [See a high-toned article, entitled *Providential and Prophetical Histories*, in the Edinburgh Review, for January, 1830.]

dust, which it erewhile hallowed, the unfettered spirit will soar eagle-like as upon the wings of the morning, and find a hailed resting-place, where its, *then* and *there*, unalloyed appetitive longings can alone meet with seraph-like gratification, and flourish unchangingly, and for ever, unsatedly, green, amidst a hallelujah atmosphere of praise.

For the expositionary purposes of this section, the extension of the analogical argument and reasoning has been, if but indicated, already sufficiently dwelt upon. Man, and Man only in the image of God, confessedly, is a UNITY OF A TRINITY OF ATTRIBUTES. An authority—to which opinions, in opposition, no one, the most sensitively humble or weakly alive to critical animadversion, needs, for an instant, heed—substantiates the view here (and how imperfectly!) illustrated. It *cannot*, and never therefore let it, *be* denied, that Brutes REASON—that Brutes have MIND. MIND, however, is not SOUL. *Mind* no more is an immaterially existing entity *apart* from BRAIN-PROPER *in action*, than, and fully as much as, *Life* is independent of Organization in action;—than Effervescence is independent of the immediate commingling of a fluid acid and alkali;—than Music is independent of the vocal or instrumental organizations, through whose media its severally interpreted kinds, are made manifest to lookers-on, and to listeners. All this with safety, enough and to spare, may be conceded to the most unmitigatedly despotic and dogmatic Materialist. Man reasons, Brutes reason. There is a river in Macedon, and there is a river in Beotia! Yet look at the difference! Assuredly, that modifying influence exercised upon the functions common to the merely organicly irritable organization, of the nerveless, brainless Vegetable, upon the superadded diffusion of the organized nervous matter to the mechanism of Animals—is as nothing, to the exalted differences of the meanest conceptions of the *soul*ed mind, of "the only *cooking*," and of *the only* RELIGIOUS, animal! By the exercise of *his* soul-modified faculties, Man not only conceives and plans, but by the instrumentality of the delicately executive powers of his

God-speaking HAND, is enabled to make his conceptions and plans take a tangible shape, or a practically useful form of action. Think of the majestic mental planning, and the successful handywork, of that Engine, to the delicate susceptibilities and colossal powers of which, it has been observed, in nearly similar words, that the ductility of the trunk of the Elephant, which can pick up a pin or rend an oak, is as nothing. By Steam and the Steam-Engine, ribbands of steel can be drawn out fine as gossamer, or a ship of war blown aloft, like a bubble in the air.[1]

What may not yet be in store to all in the-image-of-God made, when they shall have attained a fuller knowlege of the nature of other, yet undiscovered powers and applications of Steam, and of the currents of the Electro-Magnetic Fluid? Think of the *Souled-Mind*, borne witness to, by that one burst, had none other ever articulately escaped from the lips of the Mathematician of Syracuse—of him whose tomb was so perseveringly and successfully sought for, by Tully, amidst bushes and brambles.[2] *Give me*, exclaimed ARCHIMEDES, *but* ANOTHER WORLD *whereon to fulcrum my Engines, and I will move* THIS, *at pleasure!* Think of the all but speaking Telescope of Herschel revealing to the midnight star-gazer the laws of the Moon and the Planets—of Worlds innumerable! Think, too, of the application of human Knowledge;—of Flavia Gioja's Compass;—of the computations of the extemporaneously scanned, apparent proximity, greater or less, of the Moon, to those fondly worshipped, providentially placed Stars, whereby the Mariner is enabled to steer our Ships of War and of Commerce with unerring precision through the wayless deeps of the Ocean![3] Think of the sea-divided regions of the remotest portions of either hemisphere thus virtually bridged into connexion by souled-mind and souled-enterprize:—the choicest gifts of the earth within the Tropics and the varied productions of the sweat of Man's brow in every quarter of the Globe, circulated in endless exchange, so, as to minister to the reciprocated necessities—physical, social, and intellectual—of the entire human family, in its progressive stages of emancipation, from the thraldom-condition of the instinct-led Savage, up to that of the refined Creature of self-destroying civilization, aware, that the immense, to-be-accounted-for power, which he participates, has been delegated to Man—in the likeness of his Creator,—to Man, as the agent of GOOD in fulfilling the purposes of the great scheme of universal population. Think, too, *how* that scheme must be ubiquitously superintended, when each, finds his pilgrimage upon earth, though fraught with probationary suffering and deep heart-probing sorrow, to be "a happy one after all," through the OMNIBENEVOLENCE of HIM, *who hath measured the waters in the hollow of his hand:—who stretcheth out the heavens as a curtain, and spreadeth them out as a tent to dwell in;*[1]—WHO TEMPERS THE BLAST TO THE SHORN LAMB, WHILE HE WALKETH ON THE WINGS OF THE WIND![2]

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[1] [Query, Lord Francis Jeffrey?]

[2] [Gibbon's Decline and Fall of the Roman Empire.]

[3] "Eclipses, comets, and the like, afford but rare and transient displays of the powers of calculation, and of the certainty of the principles on which it is grounded. A page of 'lunar distances' from the Nautical Almanack is worth all the eclipses that have ever happened for inspiring this necessary confidence in the conclusions of science. That a man, by merely measuring the moon's apparent distance from a star with a little portable instrument held in his hand, and

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applied to his eye, even with so unstable a footing as the deck of a ship, shall say, positively, within five miles, where he is, on a boundless ocean, cannot but appear to persons ignorant of physical astronomy an approach to the miraculous. Yet, the alternatives of life and death, wealth and ruin, are daily and hourly staked with perfect confidence on these marvellous computations, which might almost seem to have been devised on purpose to show how closely the extremes of speculative refinement and practical utility can be brought to approximate."—*On the Study of* NATURAL PHILOSOPHY, *Page* 28, *Op. Cit.*

[1] Isaiah xl. *passim.* [2] Psalm civ. *passim.*

PART III.

SECTION VII.

ON THE ART OF OBSERVING, AND OF CONDUCTING OBSERVATIONS IN MEDICINE.[1]

> To EXPERIENCE we refer, as the only ground of all physical enquiry. . . . A clever man, shut up alone, and allowed unlimited time, might reason out for himself all the truths of mathematics, by proceeding from those simple notions of space and number, of which he cannot divest himself without ceasing to think. But he could never tell, by any effort of reasoning, what would become of a lump of sugar, if immersed in water, or what impression would be produced on his eye, by mixing the colors yellow and blue.
>
> We have thus pointed out to us, as the great, and, indeed, only ultimate source of our knowledge of Nature and its laws, EXPERIENCE ; by which we mean, not the experience of one man only, or of one generation, but the accumulated experience of all mankind, in all ages, registered in books, or recorded by tradition. But experience may be acquired in two ways : either, first, by noticing facts as they occur, without any attempt to influence the frequency of their occurrence, or to vary the circumstances under which they occur;—this is OBSERVATION : or, secondly, by putting in action causes and agents over which we have control, and purposely varying their combinations, and noticing what effects take place—this is EXPERIMENT. To these two sources we must look as the fountains of all natural science.—***Sir J. F. W. Herschel.***
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> The character of an observer, as of a woman, if doubted, is destroyed.—***Babbage, on the Decline of Science in England.***

The office of observation, which is an operation of the understanding, is to establish the existence of one or many natural phenomena relative to the various branches of human science. This operation is effected by means of the senses with which man is endowed; and in proportion as these instruments are less or more faithful, less or more exercised, the results of observation are less or more conformable to the unchanging laws of Nature.

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[1] Considérations sur l'art d'observer, et de faire des Observations en Médecine, par I. Bricheteau, Médecin de l'Hôpital Necker, membre de l'Académie royale de Médecine, de la Société médicale d'émulation, &c. &c. *Paris.* 1835.

Experience being entirely subordinate to observation, must not be confounded with it. It is obvious that no man can possess experience without having observed, however long or short a period such observation may have occupied. Nor is observation to be considered as synonymous with experiment, or the formation of experience. The experimentalist does not prove the existence of the laws of Nature; but the process he carries on may lead him to that result, by the way of analogy. Zimmermam has well remarked, that the observer *reads*, and the experimentalist *interrogates*, Nature.

Observation is said to be general, when it serves to establish the general phenomena of Nature, or of diseases. On the other hand, it is particular, when it applies to insulated facts collected in detail.

Observation is, unquestionably, the surest way to extend the domain of science, and particularly that of MEDICINE. Baglivi [Hoffman ?] says, with much reason, though rather metaphorically, that our art rests wholly on observation: *Ars medica est tota in observationibus.* This maxim may be extended to every science of fact. Every durable scientific theory is nothing more than the strict expression of facts, scrupulously observed.

As it is absolutely necessary to have seen, before we reason on what we do see, every science must begin with observation. Human knowledge receives augmentation only from subsequent observation. When we depart from this method of proceeding, we almost invariably get entangled in the maze of hypotheses. It is to close and vigilant observation, that Greek or Hippocratic Medicine was indebted for its merited celebrity—a celebrity it still enjoys after the lapse of twenty centuries; and the only solid addition this science has received from us, is the accumulation of facts collected by the most rigid observers. Natural History, Physics, and Chemistry, have only really advanced, when observations have been multiplied in the various branches of those exact sciences, whose perfection is so intimately connected with that of all those Arts, which minister to the wants and comforts of mankind. The most precious discoveries connected with the glory and prosperity of nations, are advantages derived from observation. It was in noting the fall of an apple with learned and profound attention, that Newton discovered the attraction which governs worlds. The well-established properties of iron when magnetized, conducted a refined and learned observation to the discovery of the Mariner's Compass—that unfailing guide during remote expeditions, to which we owe the enjoyment of the fairest productions of America, and of both the Indias; and, which has opened a boundless field for the commerce of Europe. The discovery of the precious healing qualities of the cinchona, is the fruit of observation, merely of a less refined character: that of mercury, and of a thousand other sanitory substances, has also a similar origin.

It would be impossible to compose the ingenious Pieces which adorn Dramatic Literature, without having patiently and keenly observed the manners and customs of nations. We cannot write history, without establishing it upon events, that is to say, facts observed. Representations of the glory of nations, like the representations of their decay, are but series of just and accurate observations. Thucydides, Tacitus, Montesquieu, and Voltaire, were, unquestionably, great observers! The best moral treatise is nothing more than a faithful picture of human life; and La Bruyere only succeeded in producing a *chef-d'œuvre* in moral science, because, he had thoroughly seen and observed mankind.

Aided by a rich and fertile imagination, one might concoct in one's closet, a less or more brilliant work on Moral Philosophy; but most assuredly it would be found wanting in faithfulness. It is not, to use the language of the *Encyclopédie*, in peeping at the world through a hole, or through an ill-made, dirty [un verre *sale*] and obscure glass, that an author should fancy himself able to observe the world, to know—to depict—or, to reform, it. He who expatiates on morals, without having observed mankind, exactly resembles a physician who treats of diseases, without having ever seen patients laboring under them. In general we are unable to form accurate conceptions and sound ideas upon the major part of the objects of our studies, except, in so far as we have correctly seen them, at the commencement. Defective observation, or inexact appreciation of the first subjects of our sensations, almost always leads us to erroneous conclusions. In short, it is a fact which cannot be disputed, that those who from their youth have been accustomed to observe natural effects, and to justly appreciate them, are less exposed to error, and are more exempt from prejudice, than other men.

The ancient physicians, from the very circumstance of being nearer than we are to the cradle of science, would seem to have enjoyed peculiarly favorable opportunities for observing well. Their minds were not burdened with a crowd of theories—the offspring of the imagination, and which, even now, bend and overrule facts. The successors, however, of Hippocrates, were not slow in evincing the character of over simple and easy historians. Long before they had amassed a collection of observations sufficient for the purpose of deduction, they eagerly proceeded to advance explanations, and to conceive less or more ingenious theories. From the time of Hippocrates to that of Galen, only a few physicians followed in the slow, but sure, path of observation. The newly fledged School of Anatomy, joined to the ruling predilection for the Corpuscular Philosophy, soon succeeded in turning all heads. An intimate acquaintance with organization, it was imagined, would lead to a revelation of the mysteries of life, and to the immediate cause of disease. Galen, himself a profound observer of great sagacity, created a school, which included, in equal proportion, the great principles of the art of observation, and the subtle spirit of the philosophy of the time. The immense resources of a brilliant and facile imagination, lent charms, altogether peculiar, to Galenism, which upreared itself on the ruins of pure observation, and which was organized in so solid a manner, as to succeed in riding the schools for many ages.

It was Paracelsus who dealt the death-blow to Galenism. It is a circumstance not a little remarkable, that a ranting charlatan, declaiming from his stage, and dying in a pot-house, should have been the indirect cause of the return of physicians towards observation.[1]

In the return to the excellent and sound doctrines of observation, the french physicians did not remain inactive. In this respect, from the sixteenth century, Fernel, Hollin, and Forestus did signal service, to our art; and, in the seventeenth, Baillou, Bennet, Wepfer, Bonnet, Sydenham, Morton, and others, ardently proceeded in their steps, in considerably adding to their labors, and in advancing the extraordinary revolution which Paracelsus had begun.

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[1] [The merits of that prince of quacks—Paracelsus, and the salutary influence of his ravings, have scarcely had justice done them.

"The vaunts of Paracelsus, (says Sir J. F. W. HERSCHEL,) of the power of his chemical remedies and elixirs, and his open condemnation of the ancient pharmacy, backed, as they were, by many surprising cures, convinced all rational physicians, that chemistry could furnish many excellent remedies, unknown till that time; and a number of valuable experiments began to be made by physicians and chemists, desirous of discovering and describing new chemical remedies. Paracelsus performed many of these cures by *Mercury* and *Opium*, the use of which latter drug he had learned in Turkey. Of *mercurial preparations*, the physicians of his time were ignorant, and of *opium* they were afraid, as being 'cold in the fourth degree.' *Tartar* was likewise a great favourite of Paracelsus, who imposed upon it that name, 'because it contains the water, the salt, the oil, and the acid, which *burn the patient as hell does*'—in short, a counterbalance to his opium."—See p. 112 of the Second Edition of Sir John Herschel's *Preliminary Discourse on the Study of Natural Philosophy.*

Cracks let in light. A most interesting epitome of the singularly *outré* notions of Paracelsus, is given under the division *History of Chemistry*, in the Encyclopedia Britannica, by Dr. Thomson of Glasgow. The theatrical circumstances attending the delivery of his Introductory Lecture, after his appointment to a Chair in one of the most flourishing schools of medicine in Germany, when, in the face of his audience, he set fire to all the most popular works on Chemistry which he could lay his hands upon, with various occurrences in his eventful life, prior to his dying in a state of beatitude, after a series of habitual debauches, in a pot-house, (as noticed in the text, by professor Bricheteau,) are tersely alluded to.—*Vide Encyclop. Brittan. Art. cit.*]

To the eighteenth century, however, it was reserved to exhibit, in this as in numberless instances, marvels which leave no room to doubt the immense progress made by the human mind, during that period. Natural History, Physics, Chemistry, Mathematics, Medicine, the Technicological Arts, in consequence of this general tendency to study and observation, have undergone such a revolution, that to arrive at the highest perfection attainable by the human mind, it now only remains, to follow the direction given to them. To justify what is advanced, as far as medicine is concerned, it will doubtless suffice to cite the names of Stahl, Boërhaave, and Haller; of Morgagni, Baglivi, Stoll, and Dehaën; of Selle, Zimmermann, Cullen, Frederick Hoffman, Pinel, and others. None of these have succeeded in raising a lasting monument to the science of medicine, nor have they, in any way, regenerated it, except by reviving the taste for medical observation—a taste, as we have seen, already so successfully cultivated by the ancients, and which was all but annihilated, during the prevailing barbarism of the middle ages.

The moral and physical worlds, equally within the field of the observer, form two distinct objects of study and reflection which occupy the entire sphere of our real knowledge. Of these, the first—the greatest and most exalted, is connected with the noblest part of our being: having for its object, the intercourse of mind with mind—the study of those subtle springs which actively influence free and thinking beings, it labors for the happiness of societies, by acquainting each individual member, with the extent of his duties. The second, though less sublime, is essential to our welfare, as it proposes to observe the relations of bodies among themselves, and to ourselves;—to detect the laws which the agent, necessary to their several movements, follows; to discover the methods of directing their forces, of subduing or of employing their resistance.

The observation of the physical world, is, however, not limited to matter, since, in submitting, as it were, the Universe to Man, it has a direct tendency to restore the dominion of mind over matter. Doubtless, it would be very interesting, as Gueneau de Monbeliard suggests, to compare the results of both these kinds of observation—to bring them together as in *one picture*, to groupe from it their differences, and to develop the secret affinities which unite them. But this part of the subject is fraught with insurmountable obstacles and difficulties, with which we decline to contend.

In confining ourselves to the consideration of the physical objects which the art of observing embraces, we would remark, in passing, it is to the difficulty we experience in restraining the various branches of intellectual metaphysics to the slow but sure movement of observation, that the imperfect state in which this portion of our knowledge is still found, must be attributed. How, indeed, can we have positive data as to the manner of the existence, mechanism and propagation, of the intellectual faculties, when we are still in uncertainty as to the locality of these faculties—their mode of action, and so forth? In vain do we seek to simplify ideological science, forcing it, as it were, into the domain of observation, in supposing that its primitive object lies in sensation. Supposing it the starting point of all our ideas, can SENSATION teach us the secret nature of these very ideas? Certainly not. They who *pretend* to know the essence of thought *because* they may have studied the progress of its elements, are nearly akin to certain boors who presumed themselves qualified to pronounce on the merits of a statue, *because* they had rough-hewn the block out of which it had been produced! Attentive observation and profound study of the organs wherein the mechanism of intelligence appears to operate, would be a much more proper method of acquiring information, as to its secret nature: but ideologists, for the most part, reject this study of the sphere of their knowledge, as valueless. They certainly deceive themselves. Their error would be infinitely more serious, if physiology rested on a less solid basis.

Although preference ought to be manifested towards those phenomena which have an immediate relation to the necessities of social life, and the advancement of the arts and useful sciences, yet experience demonstrates, that those which may at first sight present, merely, an object of curiosity, should not be neglected, insomuch as they may prove the origin—the starting point, of the most important discoveries.[1]

All facts of observation are connected in Nature by secret affinities which often escape our senses, or, at least, exhibit themselves only in succession. The loss of only one of these facts may be of irreparable injury to science. How many observations, barren in themselves, and in appearance frivolous, have led, by degrees, to important discoveries! The ancients knew no more of the loadstone, than its property of attracting and repelling iron. The moderns, in seeking to know more of this singular property, discovered another still more surprising,—that of constantly directing itself towards a particular point of the globe. This discovery was the commencement, so to speak, of a new order of things—opening the road to the NEW, and changing the face of the OLD WORLD. Whilst Europe was amusing itself with electricity, a Pennsylvanian Quaker (FRANKLIN) [?] found, that it might be employed to bring down fire from the clouds, and thus submit the thunderbolt to our experience.[1]

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[1] The history of all science proves, that "speculations, *apparently* the most unprofitable, have almost invariably been those from which the greatest practical applications have emanated. What, for instance, could be apparently more unprofitable than the dry speculations of the ancient geometers, on the properties of the conic sections,—or than the dreams of Kepler (as they would naturally appear to his contemporaries) about the numerical harmonies of the universe? Yet these are the steps by which we have risen to a knowledge of the elliptic motions of the planets and the law of gravitation, with all its splendid theoretical consequences, and its inestimable practical results. The ridicule attached to "*Swing-Swangs*" in Hooke's time, did not prevent him from reviving the proposal of the *pendulum*, as a standard of measure, since so effectually wrought into practice by the genius of Captain Kater; nor did that which Boyle encountered, in his researches on the elasticity and pressure of the air, act as any obstacle to the train of discovery which terminated in the Steam-Engine. The dreams of the alchemists led them on in the path of experiment, and drew attention to the wonders of chemistry, while they brought their advocates (it must be admitted) to merited contempt and ruin. But in this case it was moral dirելection which gave to ridicule a weight and power not necessarily or naturally belonging to it: but among the alchemists were men of superior minds, who reasoned while they worked, and who, not content to grope always in the dark, and blunder on their object, sought carefully in the observed nature of their agents, for guides in their pursuits:—to these we owe the creation of experimental philosophy."—*Sir J. F. W. Herschel.*

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[1] [Was FRANKLIN a *Quaker*? M. Bricheteau's words are,—"un *quaker* de la Transylvanie, (Franklin,) trouva," &c.

Although, in the majority of scientific works, Franklin is characterized, and indirectly represented, as *a quaker*, yet, that he was not, may, with confidence, be asserted. He either states, in his auto-biographical sketch, or it is mentioned on other authority, in addition to his being one of some thirteen or fourteen "small" children of a Boston tallow-chandler,—and a journeyman printer in a harsh brother's Newspaper Office—that he adventurously set out for, and, in a state of utter destitution, reached Philadelphia. Here, it was, when exhausted with fatigue and hunger, and depressed in mind, devouring, as he passed along the streets—a purchased roll—that he saw a door, standing invitingly open, and through the porch of which—curiosity-led—he passed and found himself in a Meeting-House, frequented by a body of *The Society of Friends*. He had not been seated many minutes, till, as facetiously narrated by himself—the spirit, perhaps, willing, but the flesh weak, he fell fast asleep. Does thereby hang the *tale?*

Every incident of the life of one, whose leading object, at all times, and upon all occasions, was, the promotion of the good of his fellow beings—(the Philadelphian Reading Clubs, Debating Societies, and "Juntoes," organized by him, prior to the Revolution, vouch for this,)—must be, it is presumed, less or more interesting to every reader.

Though taciturn, and in manner cold, his society was courted, and, beyond measure, preferred, even by a frivolous Court, to that of the free-thinker Jefferson—despite of the latter's fluent and splendid conversational powers. And, but for the esteem in which the "Quaker" was held in Paris, where the *Valet de Place*, at this hour, shows english and american strangers, the Chevaliers' quondam residence in the village of Passy, to the right of the *Barrier of Franklin*—an esteem for his character as an unostentatious, though eccentric, philanthropist and practical philosopher—what notice *would*, indeed, have been taken, of his naïvely perpetrated solecism in openly saluting the queen—not "of the French," but, of France—Marie Antoinette!

What people ought to have been more familiar, than our *gallican* neighbors, with the habits, thoughts, and general opinions of one, who (when he visited their capital as Ambassador for America, as he had previously done, as New England's "Agent," about the time Lafayette proceeded to the New World) afforded them so very many opportunities of analyzing them! It may be mentioned, as, therefore, somewhat strange, that french writers—even the most modern—*ecce signum*, give Franklin the *sobriquet*—for it is nothing more—of "Quaker"!

His theological creed, certainly, was peculiar. But, was it not that of a *Unitarian*, rather than of a "*Friend*"? Are not such facts as the following, exclusive of many others, incompatible with the assumption of Franklin's

It was, as already stated, by reflecting upon the fall of some fruit from a tree, that Newton was led to the most profound meditations upon the laws of weight and the fall of substances. The greatest medical discoveries have proceeded from rude and insignificant observations. The uses of bloodletting, cinchona, emetics, and of mercury, which have preserved the lives of millions—all owe their origin to remarks almost foreign to medical science. Let us infer, then, that though we should attach great importance to observations from which immediate consequences flow, yet it would be a serious error—one fatal to science—to neglect those having for their object, facts, which are at present nothing more than stepping-stones to others.

The phenomena which seemingly constitute exceptions to the laws of Nature, the deformities which, in the eyes of the vulgar, are unworthy the attention of the observer, appear strange to us, merely because of our imperfect information concerning them: it is probable, however, that they are included in the plan of Nature, and that they are arranged with those phenomena, which are reputed the most conformable to universal harmony. Thus it is, doubtless, with DISEASES, which are not, as has been frequently asserted, states contrary to Nature, but almost a regular aggregate, having a beginning, an increase, a stationary condition, and a decline—within determinate periods. Far, then, from turning away his attention from isolated and extraordinary facts, the observer should diligently seek to dissipate the obscurity in which they are enveloped, in order to elicit from them, as far as is possible, the impress of the general causes of the universe.

creed being that of a Quaker? Though he, afterward, cancelled it, yet *he* indisputably composed his *own* intended epitaph. His remains, too, I am assured, (August 13, 1835,) by a highly intelligent American, are laid, in the N.W. corner of the *Episcopal* burial-ground attached to Christ's Church, Philadelphia.

In short, it would appear, that the *naked* circumstance of the Quaker Meeting-Room having been the *first House* in Philadelphia which this good, strange, and self aggrandized man, Franklin, *slept in*, has given accredited currency to the inconsiderate nick-naming of him, as, *the* Pennsylvanian *Quaker!* . . . . How we apples swim, to be sure!]

The vast picture of Nature, like that of the ORGANISM and of Human Frailty,—to the vulgar, is a spectacle, in which nothing is distinguishable. To *their* eye it seems (to borrow the expression of a celebrated Naturalist) an immense ocean, agitated by the waves of a universal tempest, or, the theatre of a general conflict, where all the elements are in a perpetual struggle, one with another. Yet, in this chaos—this seeming confusion, the instructed observer perceives—serenity, order, harmony. If the science, he studies, has attained a certain degree of perfection, it opens to his view a methodical whole, whose parts are linked together, in one unbroken chain.

To observe well, in MEDICINE, as in the other sciences of fact, it is essential that two of the chief and most important qualities of the human mind, be possessed: 1°, A sound judgment, in order to secure accurate ideas upon the subject of the sensations. 2°, A severe logic, not only that none but rigorous consequences may be deduced, but to check the wanderings of a too vivid imagination, and keep the mind constantly guarded against the incursions of prejudice. Zimmerman justly says, on this subject, that those who possess too lively an imagination, or whose imagination outruns their judgment—see many things at once. The great vivacity of their feelings converts their sensation into a confused perception, which transmits to them nothing in exact or precise order. Those, on the other hand, whose judgment is great, and who have little imagination, generally consume a longer time in observing; but their conclusions are more accurate.

To be able to observe well, is it requisite to possess what is called GENIUS—in other words, the spirit of invention? Must we have, as Senebier contends, that superiority of talent—that universality of knowledge, which fits a man for every species of scientific labor; and that promptitude of conception, of which Newton, Leibnitz, Boërhaave, and Haller have afforded examples? We think not. Baillou, Sydenham, Stahl, and others, possessed, in a very high degree, the talent of observation. Though circumscribed within the limits of the science cultivated by them, yet, considered as *observers,* they should, perhaps, occupy a higher station than Boërhaave and Haller. It would appear that, *cæteris paribus,* the mind, by being constantly fixed upon a single series of objects, penetrates deeper into their nature, and thereby discovers their most extended relations with neighboring objects, and, with greater facility, generalizes the facts whence induction should proceed.

To establish the existence and relations of one or several facts, the observer, then, does not need an inventive mind or a fertile imagination. These qualities are of greater use in establishing the general principles which link together the various parts of science. Forestus, Henricus Abhers, and Salmuth, were exact observers. They exhibited considerable acuteness in the choice of the observations with which they furnished us; but, from similar facts, they have failed to draw the inductions that such men as Sydenham, Baillou, Baglivi, Stahl, and others, could have elicited. To render observations useful to the advancement of a science, and to avoid any illusion as to the advantages to be derived from them, a thorough study of *the science itself,* and of the facts connected with it, is absolutely indispensable. In default of these preliminaries, the most judicious and attentive observer is liable to fall into extravagant error,—to set forth as new, facts and results already known, and, to seek to establish principles already agreed upon. Here we shall not insist upon the scientific acquirements necessary to enable a physician to observe well. None, surely, can be ignorant, that Natural Philosophy, Chemistry, Natural History, &c., present to the practitioner who wishes to successfully traverse the paths of medical observation, with useful and even essential helps in a thousand instances. Indeed, without these aids, many physiological and pathological phenomena are unintelligible.

Perseverance, tenacity, and patience, are qualities indispensable to the observer. Nature does not permit herself to be understood without difficulty. Frequently, she yields, only to the importunity of the interrogator, who must vary his efforts in a thousand ways, and incessantly pursue his attempts, in order to finally decide, that a certain phenomenon is constantly reproduced with the same characteristics. He should even distrust that facility in himself, which opens to the first view the truth of which he is in quest. Consequently, it is no trifling imprudence, to bring into publicity the results of observation, before having long matured them in silence, and sufficiently established them by confirmative results.

Facts, proper to serve as the basis of a general conclusion, sometimes demand so much labor and research to be perfectly known, that the difficulties repulse and dishearten the most persevering observers. At other times, interesting facts which tend to afford the solution required, present themselves at widely distant periods, in the intervals of which, facts, seemingly contradictory, appear to threaten the success of the undertaking, and to accuse the judgment of precipitancy. However, the hope of success should not be given up, especially when the matter in hand pertains to pathological facts which are not reproduced without a special concurrence of circumstances, such as peculiar atmospheric conditions—nature of aliments—accidental deleterious emanations. The first efforts of the observer, says Senebier, are often futile; but, in allowing himself to be discouraged, he runs the risk of abandoning discoveries, perhaps on the eve of development. Time alone matures ideas, furnishes new ones, and discloses the mode of their employment; and, *that* time, however long it may be, is always profitably spent which ends in eliciting TRUTH. When asked how he had succeeded in making all his discoveries, Newton replied, "by *continually* searching, and searching *patiently*." Buffon, without doubt, would have made a similar reply.[1]

Spallanzani enjoins patience upon those who wish to become acquainted with the mode of the reproduction of microscopic animals. His example shows that it is essential to have the eye long and steadily fixed upon them before this singular phenomenon is established. It was by dint of almost incredible patience that Bonnet succeeded in rearing nine generations of a garden grub without sexual conjunction. He imposed upon himself the obligation of watching those insects like an Argus—of pursuing their history every hour in the day, and sometimes of the night also, and of observing all their changes: in short, throughout the space of three months he was continually about these little creatures. In this way, alone, could he assure himself, whether these grubs were oviparous or viviparous; and, that they possessed the power of reproduction without copulation, though, *like animals*, they sometimes submitted to this law of their reproduction.

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[1] [Is not the justness of M. Bricheteau's remark in the text, more than questionable? Buffon had too much of the poetical temperament—by the exercise of which *constitution* he made a philosophy of, and popularized, the previously

To the physicians of our own time, who have cultivated the study of pathological anatomy with so much care, what patience has been requisite in order to describe the infinite shades of the alterations of our organs! What an exhibition of constancy and tenacity has been afforded us by one of the greatest physicians of this age—LAENNEC, in his researches on sounds, so numerous and various, and yet so sure—which occur in the chest, especially during states of disease! How numerous must have been the attempts of this observer, anterior to the proclamation of those precious results, which so far place MEDICINE by the side of PHYSICS! What a glorious spectacle does a philosophic observer present, wrestling with a fact which tries his patience by the number and obscurity of its effects—which disconcerts him with a thousand obstacles—and yet sustains him by the hope of a discovery! We are, as it were, fitted for the discovery of truth, when we seek it with passion, and we deserve to find it when we know how to pursue it with constancy and ardor. But, as time is pre-

marrowless fleshless *dry*bone "facts" of Natural History—too lively and actively secreting an imagination, in fact, to be a "patient," although he was an *eager and intense* searcher.]

cious and patience exhaustible, it is essential to economize the first and to solace the latter, by diminishing the number, length, and repetition of observations. It is necessary, at all times, to avoid weakening the virtue of patience, whether by the choice of the means employed, or by the course followed, and the expedients which facilitate the observation of phenomena; or, lastly, by the choice of the circumstances in which the observations are most adapted to throw light upon the doctrinal point sought to be developed.

To the medical observer who wishes to overcome the numberless difficulties which throw themselves in his way, attention, method, and mental flexbibility, are not less necessary than patience. He must, as it were, bend adroitly before obstacles, and endeavor to surmount them by varying his observations—never trying to take them by storm. For instance, a new insect should be seen in the place he inhabits; in the exercise of his members; preparing his dwelling; providing for his subsistence. Again: his various parts should be dissected; the times of his birth, metamorphosis, amours, death, &c.—indicated. So, in like manner, a disease ought to be seen in all its periods; in all its affinities with other diseases—in its origin—its mutations—its transformations—its varieties, whether endemic or epidemic.

All the qualities we have spoken of, with many others, as necessary for the observer, would afford but a very feeble assistance, were he open to the prejudices flowing from a fallacious judgment; and did he not incessantly submit his observations to the crucible of a prudent scepticism, and to the trial of philosophic doubt. Prejudice is a veil, which obscures the happiest qualities of the mind. It is a defect, a thousand times more to be dreaded, than all the illusions of the senses—a lamentable chain which fetters the mind, and refuses admission to even the most palpable truths. We frequently recover from error which has its origin in the sight, hearing, touch; but, from an error issuing from a vitiated exercise of the judgment, from an idea preconceived and strongly impressed upon the understanding—never. Stoll is, in medicine, a memorable example of the influence which prejudice may exert upon a man of genius. This great observer had so hobbied himself with bilious affections, that he continually substituted them in the place of a crowd of different diseases. Of this prejudice, actual dissections the most multiplied, and opposed to his favorite hypothesis, failed to disabuse him.[1]

To remount to the primitive causes, which produce prejudice in the minds of the greater portion of mankind, and which prevent them from observing well, would, doubtless, be an interesting research. Gueneau de Monbeliard correctly attributes it to the numerous prepossessions inculcated by education. No sooner, he says, do our eyelids open than prejudice envelops us in her shade: her indistinct murmuring is the first sound that breaks upon our ear; and, our first regards are jaundiced by error. As our faculties are developed, prejudice fastens upon them, and strengthens with our strength. Not only does it falsify the evidence of our senses,—but it also enfeebles the glimmering ray of our reason. If it presented falsehood, only—more especially if it presented it when reason was matured—its venom would be too gross—too slow of operation, to be very dangerous. But, as it is, so to say, identified with the very germ of our knowledge—as it, unceasingly, presents falsehood and truth confusedly mingled, and divested of their distinctive characteristics, it troubles our ideas, it warps our judgment, and compels us to receive, as in-born truths, errors, of a within-us earlier growth than our reason itself.

To hinder prejudice from deeply rooting itself in the mind, and, so, to for ever block up the path of truth to the observer,—no better preventive can be found than a union of scepticism and philosophical distrust. These two rigorous antidotes may also extend their influence to the prevention of errors, to which confidence and self esteem might lead, when indulged beyond their proper limits. Genius inspires confidence, and too frequently banishes the salutary fear of self-deception. Man naturally delights to repose on his own abilities and to receive, as true, those ideas with which he is pleased.

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[1] [So, too, of a late practitioner in London, who treated every patient that came in his way, and among others, himself, for "liver complaint." Even his *vehicle* was painted *liver* color—*pro re natâ*; and his tiger and driver put literally in *livery*. After death, agreeably to request, his body was examined, and the minute condition of the great gland scrutinizingly ascertained by the scalpels of two practised pathological dissectors. So far as the appearances thus revealed were trustworthy, the *liver* of the deceased must have been the most healthily acting part of his vitalized clay.]

Having deceived ourselves, a first time, we continue deceiving ourselves, always. Fontenelle admired Newton, but without having vigor to abandon the visions of Descartes! The science of *fact* is not that of the possible. That which *is*, must be sought, by distrusting ourselves as to the matter observed. Nature, sometimes, speaks the language we *wish* her to articulate, and presents the appearance we desire. Thus even SHE may be pandered, as as the abettor of delusion, if a man be not furnished with a prudent distrust of himself.

The observer is liable to be circumvented by so many illusions and prejudices, that a wise scepticism seems to be one of *the most valuable qualities of a mind devoted to* OBSERVATION—especially when there is a *determined object* IN VIEW—a problem whose solution is *eagerly* DESIRED; or one in which a *personal* INTEREST is discovered.

How many facts appear to us, at first sight, well authenticated, which, at bottom, are but merely the results of quackish imposture? How many absurdities, revolting to a rational mind, are advanced, revered, and even reputed sacred? Were not the miracles of the deacon Paris credited, even by thinking men of the time? Are there not in existence authentic documents attesting the fact? Has not animal magnetism been introduced amongst the sciences of observation? Have not Newton and Bossuet accredited the visions of the Apocalypse, and commented upon them as ineffable truths? Intolerance and fanaticism may indeed have blinded the orator whose observations of nature had never been very extensive; but how is it that Newton, who had comprehended and unfolded the sublimest of her laws, could have seriously treated the dreams of the Saint-victim to the falling sickness!

Scepticism—the advanced guard of philosophic doubt, has for its object the submission of the opinion of others and that of the observer himself, formed in moments of enthusiasm, to rigorous and experimental examination. A philosopher can apply himself often and agreeably, to the revision of the observations of others, in the hope of eliciting results conformable to those obtained by himself: but there is something painful in the examination when it affects his own, inasmuch as there are *agreeable errors* from which the mind has to wean itself by violence; and there is none whose admission is not wounding to our vanity. Such uneasiness, however, is transient, and is soon superseded by the internal satisfaction of having rendered homage to truth.

The union of philosophic doubt and scepticism, is of the greatest utility, especially in Practical Medicine—a science of observation of general interest, often cultivated by superficial minds, and yet fraught with great difficulties, and susceptible of serious illusion. In this science, observation becomes more difficult, as the vital principle, whose *nature* is unknown, causes perpetual variations in observable phenomena:—variations which throw the observer into painful uncertainty, and which may lead him into fatal errors, if he have not constancy enough to continue his observations, and to contemplate them under all their features.

The physician's intention in amassing facts is to draw conclusions from them. Induction flows directly from observation. These two operations of the intellectual faculties should be inseparable. Apart, their utility would be very doubtful. The one could but pile up a dry collection of facts: the other would waste itself in hypothetical reasonings based on uncertain data. The whole theoretic and dogmatic portion of medical science—or rather its general principles founded upon particular facts—is the fruit of induction. The aphorisms of Hippocrates, his treatise concerning Prognostics, &c., are but series of inductions drawn from the facts contained in his other works. Thus this great physician presents us, on one hand, the facts which he had collected, and, on the other, the conclusions he had deduced from them. Other celebrated observers—Sydenham, Baglivi, Cullen, Bordeu,—present us with only dogmatic and abstract considerations founded opon the observations of diseases. Indeed, they are generally considered privileged to neglect the production of facts in support of their sentiments. Others, who may be justly termed *empirics*, have been so disconcerted by the difficulty of educing consequences from facts susceptible of infinite variation, that they have not attempted anything beyond tracing the particular histories of diseases,—thereby seeming to intimate, that nothing but *the descriptive*, is certain, in medicine! Of the two methods of establishing inductions, namely, that of Hippocrates, and that of Sydenham, which has been called the english Hippocratic school—the former is decidedly to be preferred, inasmuch, as it qualifies the reader to weigh for himself—to compare the facts on which the conclusion is based; and thus to rectify errors which may have escaped the observer himself.

If, as cannot be questioned, particular facts form the most solid basis of medical science, the degree of care, method, and clearness, with which they are collected, cannot be a matter of indifference. The methods adopted in the arrangement of observations, are almost as numerous as the observers themselves. Thus, irregularity is not so detrimental as might at first sight be supposed—and for this reason—ALL ACCURATE THINKERS *are, generally, agreed in their bases:* hence we may arrive, in this, as in other things, at the same end by different ways. We are, however, of opinion, that on this point the student should not be left entirely to shift for himself: surely a uniform and well digested method of observing would render this part of his studies more easy and more profitable?

Upon this first view is founded a series of *direct* questions of a more sifting nature. Then follows an examination of the various lesions of the functions,—whether of the exterior life, as the understanding, the senses, and muscular movement;—or, of the interior life, as digestion, circulation, and the secretions. We must endeavor to distinguish the local affections of the sympathies, and remount to the previous symptoms, as well as to the occasional causes, if the disease be difficult to comprehend. Its nature being thus determined, we proceed to the consideration of age, sex, temperament, and habit of living, and carefully remark the effect of the medicaments.

Whatever method we adopt in collecting medical observation, it is essential to fulfil certain preliminary conditions,—to follow an analytical order—that is to say, to proceed from the known to the unknown—rising to the most complicated facts from the simplest relations.

It is almost unnecessary to say, that a considerably extensive knowledge of anatomy and physiology is indispensable to him who intends devoting himself to the study of Clinical Medicine. In default of such knowledge he will not understand the changes produced in the organic functions by the state of disease; nor can he duly appreciate the value of the symptoms.

Before definitively pronouncing as to the character of an observation;—before giving a denomination to the malady observed, and assigning to it its *nos*ological place, the student ought to examine the symptoms, individually, abstracted from classification and nomenclature, (in order to avoid anything like prepossession,) and to afterward compare the signs which have much analogy in several patients, with a view to acquainting himself with their varieties.

After having in this way studied, for a few months, signs and symptoms in a general and abstracted manner, they should be considered in their relation to the diseases, and an attempt should be made to class the latter in the order of their affinities, taking for a guide, some *ex professo* work on Pathology.

The method of collecting medical observations adopted in the University of Edinburgh has enjoyed a high reputation. It comprehends many series of intorrogatories touching the age, sex, profession and temperament of the patients,—others calculated to afford correct ideas of the symptoms they experience—some that bear immediately on the origin and progress of the disease:—and, lastly, those which relate to the remote causes and accidental circumstances, as well as the means which have already been adopted to afford relief. If we would note down—says Pinel, who followed this method—the history of a patient we have two special objects to fulfil:—the one relates to his admission into the Infirmary; the other is limited to giving a daily account of the progress of the disease.

The inquiries to be made, with regard to a patient seen for the first time, are reducible to the following points :—

1°, To describe the actual condition of the patient, by noting symptoms which are manifest to the senses—the sufferings he experiences,—and, to analyze the condition of the various functions.

2°, To ascend to the origin of the disease, in order to contrast its present with its former state. For this purpose we should ascertain the peculiar character of the attack—the period of the manifestation of the existing symptoms, and what remedies have been already administered.

3°, To seek for the exciting and predominant causes. These will be found in the patient's profession or trade—in his mode of living—in accidentals, anterior to the existing malady—in his previous state of health, and sometimes in maladies to which his family are particularly liable.

The end proposed, however, according to Pinel, may be obtained by means much more simple and direct. If the patient's mind is in a sound state, he may be at once intorrogated as to the pains and affections he *feels*. If he is delirious, or incapable of exercising his mental faculties, the information desired may be obtained from those who surround him. Inquiries may next follow, as to whether the seat of the disease be in the head, chest or abdomen.

When a certain number of observations have been thus sketched out, the student may advance to the study of the progress of diseases, beginning with the acute,—carefully remarking their several periods of advancement and decline, and not forgetting their terminations, whether favorable or otherwise. All confusion may be avoided by confining the attention to ONE *malady at a time*, and studying it in various individuals. The influence which air, regimen, place, and moral affections exert upon the disease, should also be accurately noted, and mention made of its crisis, metastases, morbid transformations, and so forth. The observation may then be considered complete, if it include daily expositions (if an *acute* disease) of the most important morbid phenomena, from its commencement to its termination.

After having collected cases of simple maladies, the student should proceed to the clinical study of complicated ones—to those, namely, which present two or three orders of symptoms appertaining to different affections. He should redouble his carefulness in avoiding disorder and confusion, while proceeding to the exact separation of the signs of each of the diseases before him, and remarking the several circumstances which have produced the complication. As to ultimute arrangement, it is advisable to at first inscribe, *upon a loose sheet,* all the phenomena, signs or symptoms offered to his observation, and afterward select those which are characteristic of the maladies composing the complication. For this difficult and complex task the observer ought to choose *acute,* and leave *chronic* diseases, for subsequent study.

If it be wished to class the diseases whose history has been collected, the species, genus, class, and order, to which they belong, must be determined by way of analytical exclusion.[1]

What has just been said, refers to the mental labors of the observer. We must now speak of the mechanical labor, or of the various forms that observations, written and definitively arranged, ought to present. For this purpose, the record of facts contained in the first and third book of the "Epidemies" of Hippocrates, from time immemorial, have been considered as excellent models. Precision and purity of style, conciseness of arrangement, rapid exposition of symptoms—all are combined in this precious COLLECTION OF FACTS, which serves as a basis to the truths contained in the "Aphorisms" and "Treatise on Prognostics." These narratives certainly form a definitive arrangement, that must not be confounded with the notes which the philosopher of COS took by the sufferer's bed-side, and in which were doubtless recorded, from day to day, the different symptoms of the disease. Baglivi ingeniously compares this kind of notes to the scaffolding employed in the erection of a building, which is removed when the building is completed. Such a journal of observations should be written on a loose sheet, in the order above indicated, whether gathered from the narrative of the patient himself, or from that of his attendants. It is desirable to visit the invalid several times during the day, in order to note in writing any thing of importance which may have occurred. And let it be borne in mind, that no phenomena, whether critical or only supposed to be so, should be omitted; and, that the changes which result from, or which coincide with, these accidental phenomena, whether favorable or unfavorable—should be, with exactness, consigned to the journal of observation. Some details should then be added relative to the termination of the disease and to its chief accompanying circumstances; and, if he recover, a few remarks on the convalescence of the patient, or, if he die, a description of the alterations observed after death, ought to wind up the complete history of the indisposition observed.

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[1] [See page 73, and, more particularly, from page 75 onward—Part I. Section III.]

The journal of observation, when finished, will, doubtless, sometimes be encumbered with superfluous details, and want order in the disposition of its materials. Hence it will be desirable to give it a more methodical arrangement, and to transform it into a precise and regular representation. Stahl, Dehaën, Finke, Tissot, Wagler and Pinel, afford excellent models, for this purpose. In a complication of diseases, presenting several orders of symptoms belonging to different species observed together in the individual, the task of the observer becomes more difficult, and the method of procedure necessarily differs from that adapted for a simple malady. To attain his purpose, the student, in this case, must trace several columns upon his journal of observation, to separately receive the notes relative to the signs of the *elementary* affections of the complicated species. One of the columns should be appropriated to the common symptoms—For instance, suppose he has to trace the history of a case of pleuropericarditis, he will form three parallel columns—one for the symptoms of *pleurisy*—another for those of *pericarditis*, and the third for their *common* symptoms.

In cases of *triple* complication, the analysis may be pushed still farther. To the two diseases named, [at the close of the preceding paragraph,] suppose a diarrhœa to be added. In this case a fourth column would be necessary. With such a method of analysis, exact ideas, as to the most complicated diseases, may be obtained; and that dispiriting confusion which operates like a wet blanket upon a studious pupil, or upon a practitioner desirous to preserve an account of what he observes, would be wholly avoided. After having traced the descriptions of simple diseases in the way here recommended, the *application* will be easy.

The preceding remarks apply to acute diseases. Chronic diseases, whose progress is slower, and whose continuance is longer, less frequently offer changes worthy of remark: they do not, therefore, so much require a daily history. It is only necessary to present a concise description of their principal periods, and at distances, less or more remote, to notice the remarkable exhibited phenomena. From this aggregate a summary should be formed of all the principal circumstances calculated to afford a clear view of the morbid affections, to which it is proper to add the results of cadaverical *examinations—if any.*

Professor Bricheteau concludes his observations in synonymous words, nearly as follow:

"These views have been redacted under the influence of a school which no longer exists. But as they contain lasting precepts based upon that spirit of analysis, with which the science cannot dispense, and, in truth, as the school of Pinel, chiefly founded upon the observation of facts, has not been replaced by any other—we have thought that we should still be understood by pupils, who, for the most part, possess few correct ideas as to the best mode of prosecuting their CLINICAL STUDIES."[1]

The remainder of this volume will now be devoted to a general elementary exposition of the leading subjects summarily embraced by the imperfectly understood title of *GENERAL* PATHOLOGY.

Perhaps it will be as well to here repeat, that the majority of the articles are grounded on condensed translations, chiefly adapted from the admirable elementary work of perhaps the most popular clinical professor in the practical school of Paris—M. Chomel; and, also, from the select productions of other distinguished continental and british contributors to pathology, as duly noted in the preface.

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[1] Considérations sur l'art d'observer, page 36.

PART IV.

ELEMENTS
OF
GENERAL DISEASE-DISCOURSE,
OR
"PATHOLOGY,"
TECHNICALLY SO CALLED.

Melius est sistere gradum quam progredi per tenebras.——*Gaubius.*

Pathology, or the study of diseases, cannot be made to assume the form of a science without careful investigation, and reference to general laws; 1st, Of those Morbid Actions which produce no lesions of structure; 2nd, Of those which precede, and cause such lesions; 3rd, Of those which are produced by, and succeed such lesions, or attend their formation.——*Dr. Alison.*

Docenti autem procedendum est a generalibus ad singularia quæque, dum inventa explicat; ut inventori contra a singularibus ad generalia eundum fuit.——*Hem. Boerhaave. Inst. Med.*

How many students, as remarked by M. Chomel, conclude their studies without having any correct ideas upon the subject of *General Pathology*—a title, with the proper meaning of which, many are altogether unacquainted!

Just as confused and inexact notions were disseminated in the time of Gaubius and Boërhaave, by physicians indiscriminately employing the terms Nosology and Pathology, (as if synonymous!) to summarily express the doctrine of the laws of disease in general; so, in the present day, very mistaken and confined ideas have been, and are, entertained, by some who, in this country, apply the term Pathology as if of one and the same meaning as Morbid Anatomy.

" I am aware," says Dr. Alison, " that the term Pathology has, of late years, been much employed in this country in a more restricted sense, as nearly synonymous with Morbid Anatomy; and that what were formerly called

Morbid Appearances, left after any disease, are now frequently (although with little attention to etymology) termed Pathological Appearances. But I do not think that this restricted sense of the word Pathology has become so general as to make it incumbent on all authors on the subject to conform to it; and, if it were to be so generally accepted, I would beg to suggest that it would be necessary to devise another more general term, as a general expression for all the information which has been acquired regarding the causes, the essential symptoms, the intimate nature, and the consequences of diseased states to which the human body is subject; because it is quite certain that much important information on these subjects has been acquired by observation and generalization of facts, which is not obtained by, and could not have been inferred from, any examination of morbid appearances, but which, nevertheless, falls strictly under the denomination of Pathology, according to the use of that term, which is suggested by its etymology, and sanctioned by the greater number of the best authors."[1]

PATHOLOGY *(pathos* Πάθος, suffering or *disease; logos,* λόγος, *discourse; i. e.* suffering-discourse, or DISEASE-DISCOURSE) has been defined as that branch of medicine which treats of the classification, causes, symptoms and signs of diseases. Such a definition is far from exact. Every thing relating to Man [to organized living beings] in a state of disease, belongs to pathology, in the same manner as whatever relates to Man [*ut. sup.*] in a state of health, belongs to the domain of physiology. The seat of diseases—the phenomena which precede and follow them—their decline—the lesions which they induce in the texture of the organs—their preventive and curative treatment, &c. &c.—are so many points which complete their history, and which essentially belong to the province of PATHOLOGY, that is to say, to that branch of medicine whose object is the knowledge of diseases.

Pathology is the most important and inviting of all the departments of medicine. It is as a common centre, round which, at unequal distances, the other natural sciences are ranged. The study of anatomy and physiology, of chemistry and natural philosophy, of botany and materia medica—collectively, is introductory, merely, to that of pathology. But, whatever be the degree of its importance and the nobleness of its design, it would be as much in bad taste as it would be unnecessary and unjust, to attempt to aggrandize pathology by disparaging the other departments of Natural History. Physiology, Natural Philosophy, Zoology, &c., are intimately and reciprocally associated. They mutually aid and illustrate each other. They should neither acknowledge nor arrogate any individual superiority, relative or absolute, the one above the other.

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[1] [Preface, p. iv. Op. Cit. See also Life of Cullen, page 327.]

Like all natural sciences, pathology is boundless. The provinces of botany, zoology, chemistry, mineralogy, are extending daily; and the science of man in a state of suffering, hourly increases, by the labors and under the eye of the observer. Abstracting from the infinite varieties and almost endless novelties presented by the numerous affections to which the human race is exposed, pathology is daily impelled onward by a better directed study of causes—a more faithful description of symptoms—a more rigorous examination of the circumstances which favorably or unfavorably influence the progress of disease; and by the discovery of some malady, formerly unknown or imperfectly described.

Pathology offers such a mass of facts for study, that it is impossible for the human mind to embrace all the details. This disproportion between the extent of the science and of the human capacity has necessitated the division and subdivision of the former into many parts. The most important of these divisions is, that which distinguishes pathology into internal or medical, and external or chirurgical. The majority of the other distinctions are only secondary: for instance, *civil*, *military*, and *legal*. The diseases of women, of old people, and of infants and children, of those which are peculiar to a country, or organ, &c., have likewise been the objects of particular subdivisions; and men of the highest order of merit have not deemed it beneath their dignity to devote themselves to the almost exclusive study of one or other of these orders of affections.

There is another which differs from all of those yet enumerated—the division of pathology into *general* and *special.* The object of this division is not to arrange diseases into several classes, nor to separate one series of affections from all the others. On the contrary, general and special pathology apply equally to all diseases. *General Pathology,* whose object is *diseases considered in an abstract manner* and *in their common agreements,* embraces all of them in one groupe, and which, from their mutual points of contact and the links which associate them, are so displayed. *Special Pathology* equally comprehends all of them, but it presents them in a series of particular groupes—each affection being depicted with its proper and diagnostic physiognomy. Thus, as will be seen, there is no analogy between this and the preceding divisions of pathology. The former only abridges the study by diminishing the number of objects to be learned; the latter conduces to the same result without narrowing the domain of the science; and it not only preserves the totality, but likewise presents each of the objects to which study should successively be directed, under two distinct points of view.

This division differs from the foregoing in another respect. A student may devote himself to internal, and neglect—up to a certain point—the study of external pathology. When one has particularly studied the diseases of infants and old people, up to a certain point also, the study of the diseases of other ages may be neglected. But general and special pathology cannot be made the object of such exclusive study: the one serves as an introduction to the other: both are equally indispensable to the practitioner.

This division of pathology is that whose limits are the best marked. The entire consideration of phenomena common to maladies, belongs to general pathology. Every particular description of disease belongs to special pathology. Nevertheless, although between these two branches of DISEASE-DISCOURSE numerous points of contact exist, it is matter of legitimate surprise, that the majority of authors who have treated of general pathology, have so frequently presented a history of special diseases, amid the considerations which exclusively belong to their subject. Plethora is described *ad longum,* in almost every treatise on general pathology! Sprengel—the author of a highly valued work[1]—has gone much further. In the article *Etiology,* he successively treats of the signs of all the fractures, of luxations, hernia, &c.; and describes all the worms which may infest the human body, with the signs declaratory of their presence.

While obtruding upon general pathology subjects not properly belonging to it, others, evidently pertaining to it, are overlooked. Although belonging as essentially to this science as classification, causes, symptoms, signs, &c., the nomenclature of diseases, the circumstances influencing their progress, the treatment and convalescence, the lesions revealed by dissection, the manner of observing and interrogating the sick—are among the important points in the general history of disease, which, up to this hour, are unnoticed by authors.

Should the division of disease-discourse into general and special, appear, to some, calculated rather to prolong than abridge the study of maladies, it will be easy to induce them to change their opinion for the better. The very great importance of an acquaintance with individual diseases, must be allowed; but, be it observed—the physician could not acquire the knowledge which he possesses, without the aid of general pathology. If, in the face of reason, any one supposes that the latter is entirely useless to *him* who *has* learned, it may be further concluded, that it is unnecessary for the learner. But, waiving the urgent necessity which exists, for a beginner familiarizing himself above all, with a new language,—the study of general pathology, is, in many other respects, of a more than obvious utility. The student is ignorant of every thing, and must learn all. Diseases have appearances which are common, and they have features which are particular. Let it be asked, in a word, whether it would be better to at once expose, what is common to all diseases, or, to fatigue the tyro by useless, nauseous repetitions—in short, to reproduce, piecemeal, so much only as belongs to each disease in particular? It cannot for a moment be doubted which plan should be adopted.

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[1] *Pathologia generalis,* Amstelodami, 1813.

The study of general pathology presents many other advantages. It originates considerations highly adapted for developing the intelligence and extending the views of the neophyte. At the very outset of his curriculum, it gives him a bird's-eye view of the route along which he must journey. It signalizes the objects which should attract his attention, and the pitfalls which he should shun. It moreover indicates the manner in which he ought to study diseases in particular. Lastly, by associating affections which differ from each other, it is singularly well calculated to clear up the history of each.

Opposed, however, to these advantages, the study of general pathology has its dangers. When, for instance, it is borne in mind, that this science, *inter alia*, regards its subject-matter in an abstract generalized manner, and that there is but a single step between abstraction and error, it will readily be perceived how much general pathology favors the creation of such systems as, for a long time, have fettered the progress of the art.

But this is not the only attendant danger. Although the considerations to which it gives rise, seem to comprehend them all, it is applicable only to a given number of diseases. Systematic ideas, and the subtleties of the schools, are transformed into *laws of Nature;* and when their inexactness, error, or falsity, is demonstrated to the jaundiced eyes of the prejudiced—it is said to be NATURE, forsooth, and not *System,* which is in fault! Truly one must be surprised either at the *freaks* and *caprices of Nature,* or that SYSTEM should keep up the admiration which it inspires, until superseded by another of precisely similar character.

If it suffice to be aware of these quicksands, in order to avoid them, one may hope to be able to guard against such as have been pointed at. But no one should be too sanguine as to the issue of even his best intentioned efforts. They who are strongly prepossessed against systems and explanations refuse to acknowledge them unguaranteed. Many have attacked the hypotheses of opponents; but they have substituted others—the offspring of their own imaginations, and which, nevertheless, have appeared to them, the result only of observation and experience. Gaubius expressed his wish *to remain stationary, rather than poke along in the dark,* (see motto, page 301,) yet, in the same work, Gaubius loses himself in the murkinesses of humoralism, and gravely discusses the mechanical, as well as the chemical, acrimony of the humors!

If, as who will doubt, the proper province of pathology has been misapprehended and imperfectly determined, and if it is incumbent to free it from the erroneous and dangerous hypotheses with which it has been clouded,—it is equally necessary to adopt a more perspicuous style, with a different plan in the exposition of its subject-matter, than has hitherto been observed. Subjects have been discussed in association, which were even more different in point of bearing and distinctness in their own nature, than symptoms and signs!

In studying general pathology, is the order to be followed deserving of much importance? Is it, for instance imperatively necessary that prognosis should be studied, before diagnosis, and the causes before the seats of disease? Many pathologists think not. There are, however, particular points in the history of diseases which naturally should be studied before others. The definition of a disease first of all presents itself for consideration.

The exposition of the progress ought not to precede that of the symptoms of diseases; and causology should naturally precede symptomatology. Diagnostic and prognostic signs can properly only come after the symptoms; and the treatment should follow the consideration of the signs. Thus, amid the objects embraced by general disease-discourse, the relative places of some are, in a manner, determined. There are others, again, which, equally and without inconvenience, may be variously distributed. Be the plan what it may, one thing of importance to attend to in disposing the objective-matter of general pathology, is—to adopt an order equally suited to the investigation of diseases in particular. A deeper and more abiding impression will be made upon the tyro's mind, if the order for the study of general pathology, be the same as that for the study of each affection. Every advanced pupil is aware how materially a uniform method advantages and aids the memory, by habituating the mind to digest and systematize its ideas, and to classify the new information, as it is acquired, from day to day.

The distribution of the subjects in the following sections, and the manner in which they are introduced to the student's notice, though not altogether free from objection, will, nevertheless, it is conceived, be found as much so, perhaps, as the diversified bearings of a generalized science admit.

SECTION VIII.

DISEASE CONSIDERED GENERALLY AND PARTICULARLY.

A Real Definition of any thing belongs to the Science or System which is employed about that thing.——*Dr. Whately's Elements of Logic.*

Vouloir defenir les maladies par leur essence, conduirait a l'erreur. (Ouvrage posthume de) *Dance.*

In pathology, there are two modes of defining a thing. The first consists in precisely saying what the nature of the thing is: the second in rapidly enumerating its chief characters. In either case the definition, to be good, should present so exact an idea of the thing defined, as thereby to declare it, whenever it is presented; and by which, too, it may be distinguished from every non-identical.[1]

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[1] [" Definition, literally 'laying down a boundary,' is used to signify *an expression which explains any term, so as to separate it from every thing else,* as a boundary separates fields."....Definitions are, according to Dr. Whately, 1°, *nominal, i. e.* those usually found in a dictionary of one's language, explaining only the *meaning of the term,* by giving some equivalent expression, which may happen to be better known. 2°, *Real* e. g. one which unfolds the *nature of the thing.* Each of these kinds is *accidental* or *essential.* "An *essential* Definition assigns the *constituent parts of the essence* (or nature). An *accidental* Definition (which is commonly called a *description*) assigns the circumstances *belonging* to the essence, *viz.* Properties and Accidents (*e. g.* causes, effects, *&c.*): thus 'man' may be *described* as 'an animal that uses fire to dress his food, *&c.*'

" Lastly, the Essential Definition is divided into *physical* and *logical,* or *metaphysical:* the *physical* Definition lays down the *real parts of the essence* which are actually separable; the *logical* lays down the *ideal* parts of it, which cannot be separated except in *the mind:* thus, a plant would be defined, *physically,* by enumerating the leaves, stalks, roots, *&c.* of which it is composed: *logically,* it would be defined 'an organized Being, destitute of sensation.'...." Definitions are divided into Nominal and Real, according to the *object accomplished* by them; whether to explain, merely, the meaning of the word, or the nature of the thing: on the other hand, they are, Accidental, Physical, and Logical, according to the *means employed* by each for accomplishing their respective objects; whether it be the enumeration of attributes, or of the physical, or metaphysical parts of the essence.....*All that is requisite for the purposes of*

The first of these two ways—that which indicates the essence of things—would be preferred, were its application equally as sure and general as the other. But there is a vast number of objects whose essence is unknown; and the knowledge of the nature of such as seem to be known, is almost never sufficiently well established to serve as the basis of a good definition. . . . The second mode of defining is a succinct *description,* rather than a *definition,* of an object. It is based upon phenomena appreciable to the senses, and not upon the essential nature of things which elude them, and which are approachable only by abstraction and reasoning.

As judiciously observed by Dumas,—things abstract, mislead the mind—things sensible, conduct to truth. The history of every science, and that of medicine in particular, substantiates the assertion. During the ages which were devoted to definitions in the first instance, and to the discussions involved by them, the Sciences retrograded: whereas, their progress has been rapid from the period at which definitions were abandoned in favor of descriptions. During Hippocrates's time, little was defined, while much was described. The sages of the following ages defined every thing and described nothing.

1°, Many physicians have attempted to define DISEASE according to its essence, or conformably with its primary producing cause. According to Alcmæon it consists in—*disorder of the powers whose concurrence and harmony constitute health.* Plato substitutes *the elements* for "powers," and Asclepiades replaces the elements of Plato by—*indivisable corpuscles.* Sylvius regards disease as a *reaction of salts*; Brown considers it a—*lesion of irritability.* Be it remarked, in passing, that were any one of

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REASONING, is, that a term *shall not be used in different senses*: a *real* definition of any thing belongs to the science or system which is employed about that thing. . . . . In Mathematics the Nominal and Real Definition exactly coincide; the *meaning of the word* and the *nature of the thing* being exactly the same. It is scarcely credible how much confusion has arisen from the ignorance of these distinctions."—*Elements of Logic*, pages 130-1-2 and 3.]

these "definitions" correct, all the others must be false. Such definitions, per contra, as consist in an enumeration of the principal morbid phenomena, may—all of them—be less or more just, and differ, only, in the degree of their exactness.

Sydenham, in spite of the sagacity of his mind and the profundity of his judgment, endeavored to define disease according to its intimate nature. *Dictat ratio, si quid ego hic judico, morbum, quantumlibet ejus causæ humano corpori adversantur, nihil esse aliud quam naturæ conamen materiæ morbificæ exterminationem, in ægri salutem omni ope molientis.* Although that definition, in some respects, approaches the actual language of science, it is as defective as the foregoing. In fact it offers only a vague idea of an indeterminate effort of Nature—that is to say, of a power of which we know nothing. Moreover, the effort by which nature endeavors to oust the morbific cause, does not constitute the malady, but is a means which combats it.

The intimate nature of a disease being unknown to us, a definition of it must be grounded upon some other basis. Galen defined disease—*a state in which the functions are disturbed.* This simple and precise definition has been modified in a thousand ways by the physicians of later times, who have tried to make it more exact. Functional derangement, obviously, does not suffice to constitute disease. There are stimuluses which disturb functions without producing disease. A female, at the menstrual period, is ordinarily in a state of *malaise*—or, to use a colloquial expression, and it is any thing but the worse for that—*out of sorts*—which is not a disease. Parturition is accompanied with writhing pains: it is followed by a flow of blood from the uterus—the pulse becomes frequent—the temperature high—the appetite ceases, and, nevertheless, there is no disease. In the old man, the functions cease to be exercised with their former regularity: the genital organs become gradually more and more incapacitated for reproduction—a progressive feebleness steals upon the functions destined for establishing the relations between man and the objects which surround him—his intellectual faculties become clouded, his sensations blunted, and he is unable to move along steadily upon his "shrunk shanks." Ultimately, the organs of *individual life* share this increasing feebleness; yet there may be no disease. Take the case of a man who has lost an eye or an arm: there is no longer a *regular* exercise of *all* the functions, nevertheless, no one, surely, would consider such a one as diseased! A slight twinge, scarcely appreciable, an acute pain, a transient spasm, an involuntary movement—are each and so many derangements of function; but they are not *diseases*, properly so called.

Functional derangement, then, is not sufficient to constitute disease. Considerable embarrassment of the functions is compatible with health. *Health* has been erroneously defined—that state in which *all* the *functions* are exercised with regularity and harmony. Individual health may vary, owing to a multitude of circumstances. The health of many fluctuates with the barometer. Gaubius and others have justly reiterated the ancient observation, that no one's health continues the same for ten minutes together, throughout the day.

The terms *health* and *disease*, as used in medical writings, have justly been objected to as ambiguous. In M.M. Roche and Sanson's production, this brief and satisfactory sentence occurs. La vie *est l'ensemble des effets produits par une organization donné*; la santé—*l'ordre et la regularité dans le developpement de ces effets;* la maladie *le disordre et l'irregularité dans leur manifestation, ou l'obstacle à l'accomplissement d'un ou plusieurs d'entre d'eux.* Health is purely a relative term. Hence the appropriateness of the expression, also reiterated by Gaubius, —*latitude* of health. A harmonious equilibrium of the functions, of the pleasurable action of the majority of which, the mind is, as it were, inconscious, according to many constitutes health. An enthusiastic philosopher, while surveying the brawny figure, and admiring the in-irritable brute-like health of a Yorkshire Boor, exclaimed, "what a system you have!" There was blessed ignorance borne witness to, by the reply of the bluff countryman, when he said, he never knew he had a *system!*

Some assert, with Ludwig, that the functional disturbance to constitute disease-proper, must be the result of morbific causes. The qualifying adjective term, *præternaturalis,* has been added, with a view to indicate that the functional embarrassment, or "disturbance," is not natural.[1]

This definition, as modified, is more precise; but it admits of yet farther improvement. Every kind of functional derangement, less or more removed from the natural order, constitutes disease; but, disease can exist without such derangement. Hernia, for example, is a disease, but it does not constantly induce disturbance of the functions. Tubercular degenerescence—a severe disease—may occupy particular glands and a portion even of an important viscus, as the lungs, without apparently dishevelling the health. It is then necessary, to include displacement of parts and the alterations of tissue which may exist without functional disturbance, in the definition of disease; and, also to discriminate the derangement of function which is compatible with health.

Gaubius's definition is worded thus: *Status ille corporis humani viventis, quo fit, ut actiones, homini propriæ, non possint apposite ad leges sanitatis exerceri.* Cullen particularly objects to the expression "*status corporis*"—as limiting the notion of disease to a *state of the* body *only* ... "I imagine that most of the difficulties that occur in attempting to give a comprehensive, and, at the same time, a tolerably accurate definition may be obviated, though not all of them, by defining disease somewhat in this manner: '*Morbus est functionis læsio, permanens, molesta, a mutationibus in ipso corpore ortis.*' By *læsio,* it is understood that it is a *læsio evidens:* its being *permanens* will exclude those little transitory changes that are constantly taking place in every individual; and its being *molesta* will exclude those *Turpitudines et Deformitates* that do not affect the economy, and are not, therefore, considered as diseases or objects of medical practice."[1]

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[1] The Latin adjective *præternaturalis* has generally been translated by the expression—*contrary to nature.* Such is not its true meaning: it expresses a deviation from, not an opposition to, the natural order.—*Chomel.* Elemens de Pathologie Générale, p. 17.

Some continental pathologists have sought to establish a conventional distinction between the terms *affection* and *malady*, which, by the French, are generally employed as synonymous. A few consider the former term more suitable for cases of surgery, and the latter for those of medicine. Others have pretended that a *malady* consists in an intimate lesion of parts, and an *affection* in the sensible consequent phenomena. According to Sprengel, by whom this distinction, without a difference, is obtruded, it serves as the basis of the division of pathology into general and special. Malady, he says, is the object of the one, and Affection, of the other. Both expressions, even as employed by Sprengel, equally belong to general and special disease-discourse. The distinction must further be rejected, not only as being contrary to common acceptation, but as being calculated to mistify language, without shedding any light upon things.

The impulse recently communicated to pathological anatomy and the pre-eminence generally accorded to this branch of medicine, have misled some to, what is called, *make up their minds* to only recognise malady or disease as *a material organic lesion.* Doubtless, it is rational to recognise, that functional disturbance supposes *some* kind of alteration in the organs. In many cases, however, as such lesion eludes our senses, the derangement of function is the sole appreciable, because the sole sensible, evidence of the existence of, and which alone properly constitutes, disease.

Disease then may be defined—a notable alteration either in the position or the structure of parts, or in the exercise of one or more of the functions relative to, and as determined by, the ordinary health of the individual. Although defective in some respects—an imperfection perhaps inherent in the object-matter itself,—this definition appears, to M. Chomel, to be more accurate than any of the others.

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[1] [*Life of Cullen*, by Dr. Thomson, pp. 328-331.]

Between disorder and disease, a conventional distinction, the parent of as much ambiguity and confusion as the vague and imperfectly understood acceptation in which the epithets *functional* and *organic* are sometimes used—has been laid down by various british pathologists. According to changes produced on power and organized matter, says a pleasing writer, "the maladies of living structures range themselves into two important stages, disorders and diseases. Disorder is that kind of malady by which living matter is altered, without having its structure disorganized, and its powers are, in consequence, either increased, diminished, or varied. . . . Simple disorder of any part is in general very short in its duration, and trifling in its consequences as a blush; but the inflammatory disorder is more acute, serious, or durable in its progress, and more important in its terminations; for inflammatory disorders are the precursors of the disease of the affected structure. . . . Disease of a part is that kind of malady by which matter is so altered that its structure is completely disorganized, and, in consequence of this new unnatural structure, or removed or ulcerated state of it, such part is found to possess a new kind of powers, or is deprived of all living power." [1]

On referring to the second of Dr. Armstrong's lectures on the practice of physic, edited by Mr. Rix, the student will find the distinction, under notice, likewise insisted upon. Disorder is said to consist of four kinds. 1°, "In some error of the solids:" 2°, "in some irregularity in the distribution of the fluids:" 3°, "in some change in the quality of the blood:" 4°, "in some change in the quality of the secretions of the blood—*e. g.* the secretion of the intestines becoming changed may irritate the living membrane of the intestines, and the secretion of the kidnies may irritate the kidnies, or urinary passages; and at length the consequence may be an attack of disease.". . . . Disease consists not in any of the foregoing, but "in something being superadded to or taken away from the natural structure. There are certain ordinary habits of health; for what we call nature is nothing but a series of habits established, by the Deity, in the human body. Disorder may be said to be a deviation from those habits; and there is in the human body always a natural tendency to return to those habits, if all opposing circumstances be removed: and, therefore, in many instances, by what are called the natural efforts alone, if the cause be removed, or at least by very mild treatment disorder will be remedied.—Not so with disease, which is far more serious; for it consists in something being superadded to, or taken from, the natural structure. Though we can repair disorder of function, yet we cannot repair disease of structure, as we can a machine which has some fault in its structure. Disorder may exist without disease: it may exist independent of any alteration of structure; but disease hardly ever exists without disorder. If something be superadded to, or taken away from, the natural structure, disorder is at length linked with the disease—not always in the commencement, but almost always in its progress."

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[1] [" See pages 41 and 42 of " A Treatise on Inflammations, explaining their pathology, causes, consequences, and treatment," &c.; being an extension of a dissertation on Inflammation of the Membranes, to which the Jacksonian Prize for the year 1828 was awarded by the Royal College of Surgeons in London; by George Rogerson, Surgeon. 1832.]

If it be borne in mind that Disorder and Disease exist only, to the medical practitioner, in living bodies and as phenomenaed forth by symptoms, greatly as many (influenced by the present chrysalis stage of morbid anatomy) may be disposed to disparage the opinion, few will long withold their assent to one of the most important canons, (or say, postulates,) stablished at the root of the healing art, and that which rationalizes the interference of the physiological physician—a malady is an anormal *action* or *function* of some fluid, tissue, membrane, organ, or apparatus in *living* bodies. And further: with the exception of such lesions as are caused by chemical agents or mechanical violence, as burns, fractures, wounds, &c., Maladies being *acts* of living organized matter, cannot otherwise than be *functional* (Disorders) before they can be *structural* (Diseases). Hence *the grand object of the practitioner is,* to check a malady while *disorder* or merely functional, that is to say, before it has run on and disorganized the fluids and solids, and become *structural*—in other words, *disease,* strictly so called. In medicine it must ever be remembered, that EFFECTS in *living* bodies, become, *in turn,* most operative CAUSES. A structural change in a living body *must* induce change in the actions or powers of the structure so changed; and anormal action or function, whether occasioned by the agents of disease or by those administered to correct impaired, exalted, or perverted function, or uneasy sensation, in like manner *by the Laws of Life,* must induce structural (organic) changes, transient or permanent. To the advanced student who will give his attention and bring his physiological acquirements to bear for ten minutes upon the question—it will be obvious, either that the terms *functional* and *organic* should be expunged from the vocabulary even of *Controversial Medicine,* as voces et prætcrea nihil; or—if words have meanings attached to them, not according to the *inept abstractions* of metaphysical pathologists—(or rather of *pathological* METAPHYSICIANS, of those, namely, who talk, not enthusiastically, for that were in an age of dulness like this more than pardonable, but transcendentally, about what they themselves do not understand, to others who do not understand them)—but, as determined by the *nature of things*—that, from the observation of symptoms noted during life, and the results repeatedly obtained by dissection, *functional,* in the *existing* state of science (which *alone* it may be said concerns the practitioner—for, in his actual treatment of his patient, what has *he* to do with what *may be* the problematical state of matters some thousand years hence?) means *a malady which is* not traceable *to any alterations of organization,* either tangible, perceptible or trustworthy. Whereas, by *organic* disease or malady, in contradistinction to the functional pathology just adverted to, is meant, that the symptoms are not those *sign*ificative of a merely *guessed* change of structure, but that cadaveric inspection, *if made* at that stage *of the disorder,* in all probability, would demonstrate the existence of *palpable* disorganization, less or greater, of the membranes or organs of the body.

The immediately following paragraphs, extracted from two of the most recent british publications, exemplify the manner in which disease in general is viewed by Drs. Conolly and Copland:

"Disease is disordered action of any part of the machinery of the body. Its primary effects, or perhaps we should say, its primary palpable phenomena, are impeded or disordered functions; and of these the results are alterations of structure, and various symptoms or signs indicative of functional and of structural changes.

"There is a state of the different systems of which the body is composed, in which all the functions of life are performed with comfort and ease, and a sense of well-being. This is the state of health. Whenever any bodily or mental function is not performed thus harmoniously, there is an interruption of this state, however slight the departure from the condition of health may be. The first symptom of this slight disease, for such it is, is mere discomfort As the disorder proceeds, if it does proceed, from this slight beginning, the discomfort is succeeded by pain and various other circumstances, which are all, consequently, so many symptoms of disease. Thus the slightest disordered action may produce only inconvenience; as nausea, vertigo, pruritus: and increased disordered action will produce increased inconvenience; vomiting, loss of sense, cutaneous inflammation, with the additional symptom of pain. On this aggravated state changes of structure supervene. It occasionally happens that functional disorders, because they in such cases affect parts of a low degree of sensibility, proceed far, even to structural alteration, with nothing more than symptoms of occasional discomfort: but these instances are not frequent.

"Compatible with the state of health, also, are considerable varieties in the performance of certain functions. They do not interrupt health so far as to produce even discomfort. The pulse of some individuals is never beyond 50, and of others never below 110. In some the function of digestion is more rapidly and actively performed than in others: and the intellectual alacrity of different persons is well known to be widely different, yet without disease. But when the food is not digested without discomfort or pain, or the circulation not carried on, or the mental movements not made, without similar results; when the appetite is lost, when there is fainting, when there is privation or other affection of any of the sensations or mental faculties; then there is disease."[1]

Health and Disease defined.—" Whilst the energy of the vital endowment is uninjured, and its manifestations in the various systems are in due harmony throughout, and with the state of the structures with which it is associated, all the operations of the body are duly and steadily performed. This is the condition which may be termed *health*. But as soon as the energies of the vital principle become depressed, excited, exhausted, or otherwise altered, either throughout the body, or in any of the systems or organs by which it is manifested, and when change from the natural condition is primarily produced in any of the structures with which it is associated, *disease* supervenes. This aberration from the natural condition of the vital energies endowing the whole, or parts of the frame, or alteration of the textures which these energies actuate, is produced by causes acting sometimes singly, occasionally in combination, and frequently in succession."

Disease is " a series of changes resulting from causes, between which and their effects there is a most intimate, although not always an obvious, relation!"[1]

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[1] [Cyclopædia of Practical Medicine, p. 604, vol. 1.]

DISEASE IN PARTICULAR. Having treated of disease in general, it is proposed to now offer some general observations as to the manner of defining diseases in particular. The considerations to be submitted are applicable to all affections, and, consequently, belong to general pathology.

To correctly define each individual malady is of infinitely greater moment, than to lay down exact ideas of disease in general. Our definitions should be grounded upon sensible phenomena; for we are as ignorant of the intimate *nature* of each particular affection as we confessedly are respecting that of disease in general.

It has been lately advanced, that the only way to define a disease, is to determine what *organ* is affected, and *how* it is so. This kind of definition—applicable to but a given number of maladies, is not, properly speaking, a definition. To say that *pleuritis* is inflammation of the pleura; *ascites*, an effusion of serum within the peritoneum; *epistaxis*, a bleeding from the pituitary membrane—is to explain—is to amplify upon—the word, and not to define the thing. But a graver inconvenience attached to this kind of definition, is the uncertainty as to the seat of some diseases, and the consequent discrepancy of medical opinion. How various, for instance, the definitions of *intermittent* fever. Some refer its seat to the liver, others to the spleen, stomach, intestines, nervous system, skin, vena porta, lymphatics of the mesentery. What confusion has not resulted from so many conflicting definitions? Definitions to be intelligible to rational posterity, must be based upon phenomena which impress the senses.

There are cases in which the manifest cause of diseases enters, as an essential element, into their definition. Contusions, wounds, painters' colic, asphyxia, syphilis, small pox, &c. cannot be exactly defined, if the cause which specifically produces them is not indicated.

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[1] [A Dictionary of Practical Medicine, by James Copland, M.D. p. 556.]

To properly define disease, as a general rule, it is requisite to combine the greatest possible number of facts relative to it—to attentively compare them, so as to isolate the common from the merely accidental phenomena. The phenomena observed, in the greatest number of cases, should constitute the characteristic traits of the disease; and their succinct enumeration should present its image, or definition. The intensity of the characteristic traits is always in a ratio corresponding with that of the disease, while the accidental phenomena may be very mild when the disease is severe, or very intense when it is slight. To give an exact delineation of a disease it should be represented when it is most developed—the principal phenomena themselves being then most pronounced. A malady, to be thoroughly known, as Grimaud observes, should be studied as modified by age, sex, temperament, climate, and so forth.

A limited number of select characteristic traits should constitute the *descriptive definition* of a disease. They should be such as are apparent when the malady is mild, although apt to be overlooked by an unscrutinizing eye. One or more such characteristics may be wanting in some cases; but those which exist should be sufficiently numerous to clear up the decision of the physician. For example, if we take inflammatory fever, we shall invariably perceive the intensity of the characteristic phenomena proportioned to that of the general disorder. Should the disease be very intense, the skin will present a red tint, which will be most apparent upon the face and at the orifices of the mucous membranes: the thirst will be keen, the pulse full, the breath hot, the flesh firm, and the urine high colored. If the complaint be very mild, several of these phenomena will be entirely absent, and the other or milder symptoms, more marked. In intermediate and ascending grades of intensity, the malady and its characteristic phenomena will be seen to be simultaneously exasperated. Thus the bedside observer may satisfy himself as to what phenomena truly form the characteristics of the disease.

Nomenclature of Diseases. There is no science whose nomenclature is more defective than that of Pathology. No rule has been observed in the selection of the terms under which diseases have been described. Some are designated according to—their presumed or ascertained seat, *hypochondriasis; pleurisy:*—their producing causes, *sun-stroke; suppression of the menses:* others, conformably to the seasons and localities in which they appear—*autumnal remittent; jail and camp fever; typhus of America;* the *french or neapolitan disease*—syphilis: or, according to the chief symptom—*hydrophobia; chorea:* or, according to color—*measles; scarlet fever:* or, from a resemblance to objects in natural history,—as *cancer, polypus, elephant leg.* Diseases are also characterized by epithets relating to their progress and duration—*intermittent, remittent, continued* and *ephemeral.*

It is unnecessary to multiply instances. Pathological nomenclature presents a tissue of incoherences. Several common denominations, not included in the above catalogue of examples, lead to error, by the false notions they conjure up in the imaginations of the uninitiated. This remark applies most forcibly to many titles, hazarded upon the presumed seat and geographical origin, or upon some single unessential phenomenon of maladies: *e.g. hepatic flux* (query *hepatic?*) the *disease of Siam* originated in America! and as to *whites,* the colors of the discharge most commonly so known, are anything but white.

Many pathologists have endeavored to rectify the too glaring imperfections of such a nomenclature. The corrections, however, have been but partial; and, *therefore,* have been more pernicious than useful. They have led, it must be confessed, to the abandonment of a few vague and preposterous denominations; but, on the other hand, they have introduced the greatest confusion and contradiction into the current phraseology. Most maladies have received more than two or three names in the same language. Yellow Fever enjoys the reputation attendant upon upwards of twenty *aliases.*

No one, as yet, has submitted a complete nomenclature established on bases uniform for all diseases. The labors of Plater, Sauvages, Linnæus, Vogel, Sagar and others, have been successively improved upon; and the nosological systems of Cullen, Parr, Young, and that of the author of the *Menagerie*-'Study of Medicine,' are less or more familiarly, and notoriously, known to most advanced students.

Perhaps it may be asked, if, in the actual state of science, it would be advantageous to establish a thoroughly new nomenclature, and upon what bases it ought to be founded? Bearing in mind the imperfection and incoherence of the classifications which "obtain," it is, *indeed*, desirable that they were superseded by a methodical one—one which would be equally adapted to make known the characteristic traits of each affection, and to determine its *pathological* relation with others. But, if we reflect how much the multiplying of *wordy* epithets has increased the difficulties besetting the study of pathology,—if we further note how extremely difficult it would be, to get a reformed nomenclature generally adopted: finally, if the apparent contradictions be regarded, which have led to the giving of new denominations—to the unfavorable conclusions which it has pleased a "discerning public" to entertain against the certainty of medicine—from a review of what each and all of these landmarks point to, it will be found, that any advantages which another nosological arrangement might offer, would be more than counterbalanced by the inconveniences inseparably resulting from a new nomenclature. Morgagni has some excellent remarks upon this subject, in his sixty-sixth epistle. Nevertheless, it must of course be granted, that any one who would submit a good nomenclature *in connexion with a work in which the descriptions of diseases should be ably executed*, would render a substantial service to science, provided such reformed nomenclature should be sufficiently perfect to remove the wish of redacting a completely new one.

It would be difficult to correctly say what bases would be the *most* eligible upon which to uprear a new system of

Nosology. In his Treatise on Inflammations, published in its extended form, in 1832, Mr. G. Rogerson, of Liverpool, justly observes—"pathology is only a mal-state of physiology, and its nomenclature ought to be expressed in the language of physiology, with some minute alterations, signifying the degree or kind of mal-variation; *i. e.* the part affected should always be named with some slight distinguishing characteristic, indicating it to be in a state of disease."[1]—Accordingly, in the volume referred to, Mr. Rogerson has nosologized the pathologies of the different textures of the body by appending the affix, *itis*, as *significative* of Inflammation being (according to *his* views) the chief, if not the sole, pathological action characterizing the multiform affections to which the various simple and compound membranes of the living system are liable.

It would be foreign to the elementary and indicative purposes of this work, to canvass the grounds upon which are founded any such exclusive views, as Mr. Rogerson's, respecting the *nature* of the various and generally complicated morbid actions of the economy of living bodies, being, as he alleges, essentially *inflammatory*. The student's interest, it is conceived, and the importance of the matter in hand will be best promoted, by referring to the Introductory Remarks of an interesting little publication, issued, so recently as 1834, by Dr. Hume Weatherhead, of London. As the reader will find on turning to page 25 of the work, entitled as in the foot note, Dr. Weatherhead also entertains the opinion, that "the name of every disease ought to express, as perfectly and in as concise a manner as language will admit, both the nature of the disease and the exact seat of it. Thus the termination *itis* is now made by convention to denote inflammation; and when this is united with the name of the part inflamed, we have the disease accurately signified."[2]

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[1] Op. Cit. *passim.*

[2] "A New Synopsis of Nosology, founded on the principles of pathological anatomy, and of the natural affinities of diseases, by G. Hume Weatherhead, M.D. &c."....[Dr. Weatherhead arranges diseases under four CLASSES, 1st,

After a few observations as to pathological synonymes and etymologies, the seats of diseases will be the next subject introduced, in a general manner, to the notice of the student.

Synonymy and *Etymology.* The same disease having received many names *e. g.* yellow fever, and the same name having been given to different maladies by different authors, the study of pathological synonymes becomes, in some measure, a necessary part of medical study. A practitioner may doubtless perfectly treat a disease, though unacquainted with the origin of the name by which it is designated; but it is equally certain, that it would be painful and disadvantageous to him to be ignorant of it, if by chance some inquisitive being were to question him upon the subject. Besides, practitioners should know the precise import of the terms employed by pathologists, otherwise medical phraseology must be like a strange language to them. As the majority of the terms are derived from the Greek and Latin languages, and as their study ought always to precede that of medicine, the clinical pupil should experience little difficulty in appreciating the etymological signification of the greater number of the technicalities employed, in the theory and practice of his profession.

Phlogotici—pure inflammatory diseases. 2nd, *Hæmaphmarmatici*—diseases originating in a miasm or poison tainting the healthy blood. 3rd, *Neurotici*, diseases of the nervous system. 4th, *Vitia*—injuries, morbid formations, and malformations.]

SECTION IX.

THE SEATS OF DISEASES.

> Neither the Study of Physiology, the Study of Symptoms as they appear during life, nor the Study of Organic Lesions discoverable after death, is sufficient in itself to enable us to deliver the history and explanation of the phenomena of disease. . . . Information from ALL these sources must be collected and COMBINED for this purpose.——*Dr. Alison.*

The investigation of the seats of diseases is one of the most important points of pathology. The seat of a malady is sometimes easily ascertained by the unaided application of the senses. This holds true as respects the range of affections of the cutaneous tissue, and the diseases invading the orifices of the mucous canals. There are, however, many diseases properly referred to the department of internal pathology, whose seats cannot be recognised by the mere aid of the senses: reasoning must be superadded. Lastly, there are maladies, the seats of which remain obscure or unknown, not only during the life, but even after a careful cadaverical examination of the remains, of the sick.

As illustrations of the first, external erysipelas, zona, conjunctivitis, ulcerations, turgidity of the external membranes, amygdalitis, excrescences developed in the nasal fossæ, vulva, or rectum—may be distinguished and pronounced upon, *at sight.* The value of the *speculum* and of the *sound-measurer*, &c. has been already noticed.[1]

There are two modes of attaining a knowledge of the seats of internal pathology or disease. The first consists in the exact observation of the morbid phenomena, compared with the organic alteration detected after death: the other mode is grounded upon the laws of physiology. When a series of determinate phenomena has uniformly coincided with a lesion always similar in similar membranes, this inference is deducible:—in all cases in which the same phenomena shall be reproduced, the same organ is similarly affected. Thus, with all patients who have died after having experienced deep seated pain in either of the sides, accompanied with a sense of oppression, viscid blood-tinged sputa, and frequency of pulse—a remarkable alteration in the tissue of the lung has been found: namely, its having become heavy, consolidated and airless. Whenever a similar assemblage of phenomena is observed, it may, with positive certainty, be inferred, that the lung is the organ affected, and that hepatization is taking place.

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[1] [Section III. PART I. page 67, et seq.]

There are diseases, which, whether mild or severe, produce no *sensible* alteration in the *structure* of the organs. When patients sink, whether from the direct effects of such maladies, or their depressing influence exercised upon the moving powers of the circulating system, or owing to some other co-existing affection—nothing tangible is discovered which can satisfactorily account for the phenomena observed during life. Many are carried off, suddenly, with signs of apoplexy, with the convulsions of lock-jaw, or writhing under the spasms of hydrophobia, and others die paralytic—without dissection revealing any kind of lesion. To take a case of frequent occurrence:—A person affected with acute rheumatism, or with some specific, or with some nervous affection, is attacked with another disease, which proves fatal to him. Very well, in a majority of cases of this kind, no *appreciable* alteration is met with in structures or organs in which, *during life*, excruciating pain was experienced. Dissection has hitherto failed to determine the seat of many maladies, and it is solely from the laws of Health, as the standard of comparison, that ideas which will be correct, and which, if acted upon, will be found successful at the bedside of the sick, can be arrived at. Hence, as physiology acquaints us with the actions of living organs, wherever we observe disordered function, we must admit the existence of a lesion, it may be, of *some* kind, in the organ of which that function is the attribute. But, if it were pretended, in this way and upon all occasions, to determine the organ affected, grave errors would be perpetrated. Of this, the study of sympathies or the doctrine of sympathies furnishes demonstrative evidence.

The difficulty of fixing the seats of diseases becomes still greater, in the case of those which are characterized by general functional, without *primary* local, disturbance: e. g. *fevers*. The exterior habitude is altered; circulation, heat, digestion, secretion, sensation, intellect, the moral feelings—almost invariably present simultaneous disturbance; and respiration, and the organs of locomotion and of voice, are, less or more, affected. Yet, amid this catholic disorder, *which* is the affected organ? Must the authority of great names be appealed to, with a view to setting the question at rest? The truth is, recorded opinions are so contradictory, that, collectively, they furnish a strong argument against the trustworthiness of each of them, in particular. Must the evidence of the dead body be appealed to? Sometimes dissection shows no organic lesion. At other times, cadaverical inspection shows, *at once,* disorder of all the splanchnic cavities, intestinal ulcers, redness of the bronchial mucous membrane and of the pulmonary tissue, serosity in the ventricles of the brain, an alteration of the color and consistence of the spleen and muscles, exclusive of gangrene of the integuments in few or several points. Thus, despite of the narrow-minded confidence with which, of late years, it has been advanced, that *all* fevers are inflammations of the brain, stomach, or intestines—judicious men, exempt from prejudice, are, at this hour, constrained to admit, as they also are to range, such maladies, among those whose *seat* remains unknown, or undetermined, except to myopes.

There are diseases which may invade all the tissues. Inflammations, cancer, scurvy, syphilis, affect them all, the epidermis and its productions excepted. Other maladies are manifested in only a few of the tissues. Dropsy occurs almost exclusively in membranes lining the interior of cavities and in the cellular tissue. The seat of spontaneous hemorrhages is generally in the mucous membranes. Hemorrhage, however, may occur in other organs. Moreover, in parts whose structure otherwise exempts them from dropsy, this disease may be formed through the medium of accidental cysts.

The seats of diseases, ordinarily, are the same throughout their continuance. In wounds and fractures, the same parts are always and generally solely affected, although the disease varies in extent. In cancer, the malady is susceptible of being extended to contiguous or remote parts, and never ceases in the place where it first appeared.

The morbid phenomena of some maladies are successively transferred from place to place. Visceral inflammation, particularly when of an erysipelatous nature, may, in succession, occupy different points of the mucous membranes, and sometimes even pervade them all. In external cutaneous erysipelas, this mobility is still more evident. The local action of the malady ceases in the place which it primarily occupied. It gradually steals along the neighboring parts, and ultimately spreads very far from where it commenced. Certain ulcers of a specific character, are cicatrized on one side, while the ulcerative action makes progress and destroys the structure of parts on the opposite side.

There are also diseases, which, instead of progressively extending from place to place, are suddenly transferred to a locality very remote from that in which they were primarily manifested. Nettle-rash disappears, and as suddenly re-appears in a totally different part of the body. This ignis-fatuus-like disposition for some morbid actions to move or skip about, forms one of the most essential characteristics of acute rheumatism. Some nervous affections are likewise marked by this aptitude to shift the scene of their actions. During what the old authors not inappropriately term the catamenial *molimen,* or constitutional disturbance preceding the appearance of the periodical secretion from the uterus, blood has been seen to vicariously flow from the nose, eyes, and ears, or has been excreted by the rectum and urethra: a sanguinolent fluid has also been observed to ooze from old cicatrices, from the umbelicus, and axillæ of the tips of the fingers.

Period of Life and Season. Age very unequivocally influences the seat of disease. During infancy, the head; at puberty, the chest; in adult age, the abdomen; and during advanced life, the urinary apparatus—are the principal seats of diseases. Lastly, the seasons also exercise a marked influence upon the seat of disease—especially of acute affections. During winter, diseases of the head prevail; those of the chest in spring; and those of the abdomen and lower belly during summer and autumn.

Such constitute the chief points of view, in which, for educational purposes, what has been, and which by many pathologists continues to be, styled, the *seats* of diseases, may be considered.

Before closing this article it is proper to observe, that, as far as can be gathered from the progress of opinion, and the more comprehensive views promulgated by recent contributors to pathology in Germany, France, and Britain, the term "seat," as hitherto used and understood, bids fair (except in as far as subserving conventional and doctrinal purposes) to become obsolete in the vocabulary of medicine. Upon the strength of a general survey of the tendency of the most modern range of criticism offered upon the PHILOSOPHY OF DISEASE IN GENERAL, it may with force be asked, if a tithe or twentieth part of the generalized morbid actions to which organized living beings are subject, really has "*seats*"—as arbitrarily laid down, circumscribed and fixed by several absolutists?

To arrive at a conclusion which may be satisfactory (to his own mind at least) as to the medical faith that is in him, the student will find it to be truly his interest to become acquainted with the tenor of the articles on DISEASE, quoted from, at pp. 319–320. Afterward let him peruse the analysis of Bayle's remarks, "On the relative importance of Morbid Anatomy in reference to therapeutical and etiological Science,"[1] and next critically dwell upon the spirit of the preliminary observations, extending from page 321 to 326, of professor Alison's Outlines of Physiology and Pathology. Finally, and, above all things, let the *testimony* of honorable opponents, ever valuable, but particularly so, in a high-minded science of probabilities like that of Pathology, be faithfully set off and balanced against the opposite side of the account. Hobgoblin absolutism is never more misplaced, and more to be scouted, even as a feint, than in medicine.

Malady being characterized as a notable alteration occurring, either in the material disposition of the solids or fluids, *or* in the *exercise* of one or more of the *functions*, as by M. Chomel, (in his preferred definition in his "Elements," and as extended in the French Dictionary of Medicine,) is, for the addition necessitated, justly commented upon by professor Dubois![2]

According to the distinguished german pathologist, Reil, and as re-echoed by Dubois, every accidental reaction of the organism against a disturbing cause, is considered *disease*. Diseases are modified acts or functions—acts essentially *vital*, but ANORMAL; and *re*actions—because consecutive to the provoking action of some internal or external stimulus, the tendency of which, is to convert the ordinary normal or physiological operations of the organization into such as are contrary, or pathological, in their tendency. Reil, in the spirit of the ancients, has given the name *reaction* to the aggregate of vital modifications resulting from the action of any stimulus. The vital dynamics of reaction are essentially required to constitute disease. This premiss in the logic of pathology once recognised, a number of otherwise irremediable difficulties, are dispelled. But, hence the difficulty of "*fixing*" the SEAT of the majority of maladies.

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[1] [Medico-Chirurgical Review, for July, 1818, p. 125.]

[2] La seconde définition donnée par M. Chomel, (*Dict. de Méd.* 13.500,) quoique plus étendue et plus générale, est encore plus défecteuse, parce qu'elle est conçue dans le même esprit. La maladie, dit-il, est une altération *notable*, survenue *soit* dans les dispositions matérielles des solides ou des liquides, *soit* dans l'exercise d'une ou de plusieurs fonctions. Je répéterai ici ce que je viens de dire: il n'y a plus seulement dans l'organisme des solides et des liquides, et, en outre, toutes les conditions de la disposition normale des ces solides et des ces liquides ne nous sont pas connue, et c'est pour cela qu'on est obligé d'ajouter, comme complément de la définition, *soit* une alteration *notable* dans l'exercise d'une ou plusieurs fonctions.—*Traité de Pathologie Générale*, vol. i. p. 17. (1835).

If the reaction is local, it is enough to know the point of its departure—the locality upon which the causes *tell.* Should the reaction become general, it will be declared through the medium of the agents of reaction, namely, the heart and nervous centres in *general,* and the nerves and vessels of the part affected, in *particular* REACTION. The problem for the practitioner to solve is, the *mode of action* of the cause, whether the cause in question operate from without, or whether it is developed in the bosom of the organs. In all pathologics, there are organs executing morbid acts, yet it cannot with propriety be said, that the acts, in other words, the maladies, have a definite *seat.*[1]

Though upon a subject of vast interest, this section must here close. It is brief: it is therefore imperfect.

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[1] Entwurfeiner Algemeinen Pathologie, REIL.—Traité de Pathologie Générale, par E. F. Dubois (d'Amiens). Paris, 1835.

SECTION X.

CAUSE-DISCOURSE, OR, "ETIOLOGY,"

TECHNICALLY SO CALLED.

THE CAUSES OF MALADIES IN GENERAL.

> Almost every event in nature may be considered as part of a chain or series of causes, which have, in that series, produced one another; and of which, consequently, every part may be said to be a cause of the last effect. Thus:—
>
> A man on board of a ship of war applies a lighted match to the touch-hole of a loaded cannon—this kindles the gunpowder—this produces an explosion—this explosion pushes with great rapidity the bullet—this bullet striking upon the timber of another vessel shivers it into splinters—one of these splinters happens to hit, with great force, the head of a man standing by, and instantly kills him. Now this death may be easily traced from any one of the series or chain of causes; and the same is the case with regard to most other effects or events in nature. It is common to apply the term CAUSE to each of these actions or motions, but there is often a necessity for distinguishing them as more immediate or more remote in relation to their ultimate effect. In the case supposed, the stroke of the splinter was the immediate cause of the man's death, and all the rest of the series were remote causes.
>
> This distinction is very necessary. It has been much employed in physic, and has given rise to the terms Remote and Proximate Causes.——***Dr. Cullen.***

ETIOLOGY—derived from *aitia*, *αιτια*, *cause; logos*, λογος, *discourse*—signifies CAUSE-DISCOURSE. Its object is the knowledge of the causes which induce *morbid* ACTIONS and RESULTS in the economy of *living* organized bodies. Whatever produces or concurs to produce disease is included under the title.

Agents capable of modifying the actions, and, consequently, of altering the structure of the living *organization*, exist everywhere—around and within it. Hence the boundless field of inquiry opened up to the etiologist by this department of disease-discourse, which virtually proposes to include a knowledge of the influence exercised upon living beings by *every object in nature.* Things indispensable to the individual life of man and for the conservation of the species, in particular circumstances, may occasion disease. Yet, with the exception of the elements of contagion, which in their causation, are essentially independent of adcititious influences, Testa's observations—*Nihil proprie morbificum, nihil noxium natura sua* is, in great measure, well founded.

Every thing surrounding us upon the earth's surface, is not, as some have insisted, capable of directly inducing anormal action in our systems. Man evidently cannot be influenced by bodies situated beyond our planetary system. The influence of the sun is indisputable; that of the moon, as recognised by the observing ancients, and though denied and ridiculed by a few, has been philosophically re-considered by some of the most distinguished philosophers of modern times:—among others, by M. Arago. So convinced was Hippocrates of the effects of the stars upon living beings in health and disease, that, as is well known, conversance with astronomy was inculcated by him as a necessary accomplishment for a trust-deserving physician. The expressions *lunacy* and *lunatic,* in most languages, relate to the intellectual and moral condition of those, whose brains, upon the application of the ordinary stimuluses from without and from within, are not considered to respond in a manner exactly kindred to the conventional standard of those reputed, by courtesy, of sound mind—upon the whole. Mead, Hoffmann, Sauvages, and very many others, were considered as sane: they admitted and defended *their* belief in lunar influences. In the *Annales de Bureau des longitudes* for 1833, the curious reader will find in what a luminous interesting and unbiassed manner M. Arago alludes to the matchlessly delicate susceptibilities with which many of the organs of the human body have been endowed, while estimating the opinions preferred by Olbehrs and others, in disproval of there being any sensible data in support of the "superstition" under passing consideration.

Without speculating upon the conjectural etiological agency of the Moon and Comets, and merely noticing M. Dubois's paragraph, in which allusion is made to the heart in the human microcosm being assimilated to the sun, and the brain to the moon, (and which were believed to receive and respond to their agency,) Jupiter influencing the lungs, Saturn the spleen, Venus the "reins," and Mercury the organs of generation—the manner in which the various mundane objects whose etiological effects are somewhat better known, have been classified, must now be treated of.

The causes of disease have been distinguished by the epithets *external* and *internal,* or those which are placed *beyond* and *within* the living system; *principal,* those chiefly concerned in developing disease; *accessary,* such of them as trivially influence its production; *remote,* those which prepare or determine the alteration that forms the proximate cause of the disease; *predisposing,* those which, by modifying, adapt the organism to be affected by a given malady. *Physical* and *chemical* causes, have also been admitted; *physiological,* or those which suppose the concurrence of vital reaction in the organ which receives their impression; *negative,* those which consist in withdrawing the necessary stimuluses of life; and *positive,* or those which are actively concerned in the production of disease. Lastly, as some maladies occur without *appreciable* cause, the admission of hidden or *occult* causes has been deemed incumbent. Under this last term, authors have designated many unknown states of the atmosphere to which the development of epidemics have been attributed.

Irritant and *Sedative* causes have been treated of, as if none others existed! so much in the way of adduced proof of the facile conception of those, who have gravely grounded whole pages of remark exposing such of their abortive and extreme generalizations, in detail.

Each and all of these divisions are objectionable, and particularly on the score of inconvenience. The proximate cause is nothing else than the essence of the disease itself: how can it, then, be reckoned among etiological causes! Under the head of occasional causes, the most glaringly different things are included. How absurd, for instance, to class the impression of *cold*, which one while causes pneumonia, and at another anasarca, and most frequently no disorder whatever, side by side with cutting instruments, syphilitic virus, poisons, &c., which uniformly produce a certain effect! None of the divisions, sketched above, groupe causes which *operate in an analogous manner*—the circumstance which should serve as the basis of a natural division of morbid causes.

Three genera of etiological stimuluses are admitted by Chomel. 1°, *Specific* or *determining*. 2°, *Predisposing*. 3°, *Occasional* or *exciting*. And the entire catalogue is thus disposed of, in an essentially similar manner, by Dubois, who, as it will appear, adds a fourth. 1°, Those whose action is general and common, and which insensibly prepare the economy for contracting a given order of diseases, or some individual disease—*predisposing* causes, some of which develop morbid action in a comparatively limited time. 2°, *Determining* causes, which take effect only where a predisposition, or proneness to disordered action has been already formed. Their action being uncertain and obscure, induces Chomel to divide them into two subgenera: *(a)* the *predisposing*, properly so called, i. e. those gradually impressing particular modifications upon the system: *(b)* those whose instantaneous action can only germinate a malady, to which there already exists an adapted predisposition:—these constitute the *occasional* or *exciting*.[1]

Dubois's third genus embraces a quite peculiar order of causes, those, namely, which invariably occasion similar effects, or *a* given series of phenomena—*specific* causes, in short; in other words, those which are manifested, either only in consequence of the operation of certain modifiers upon individuals, or whose phenomena are, mediately or immediately communicated from one person to another. Lastly: the fourth groupe, under the epithet *traumatic*, includes every result of contusion, distension, laceration, &c. in any of the tissues. Though properly belonging to the province of surgery, the consideration, nevertheless, of the effects induced by these etiological agents, is of equal value as a subdivision of the subject-matter of DISEASE-DISCOURSE.

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[1] [Chomel Path. Générale, p. 45.]

The above plan, though not absolutely perfect—what one could be?—will be found eminently conducive to much-needed simplification and precision, in the investigation of so comprehensive a department of inquiry as general pathology.

Predisposing causes in general. Being *permanent* in their generally slow mode of action, the *predisposing* order of causes constantly impresses, and insensibly modifies the organism. The influence of some of them is simultaneously exercised upon great numbers of individuals, as the inhabitants of a town, province, or empire; sometimes upon masses of individuals, as in camps, on shipboard, in hospitals, and in prisons. They pave the way for similar affections in all who are brought within the sphere of their operation. Such are specified as 1°, *general*, in contradistinction to others, whose action is confined to isolated individuals, and which are therefore styled, 2°, *individual* predisposing causes.

1°, The greater number of *general* predisposing causes exist in the atmosphere, or depend upon peculiarities in the geology, meteorology, &c. of the place of residence. Dry and cold air predisposes to deep seated inflammations and hemorrhages. Hot and dry air induces skin diseases. Air that is hot and moist favors the production of diseases characterized by debility; and if moist and cold, what are colloquially styled "church-yard coughs," with "rheums and fierce catarrhs." The privation of light and of the influence of the sun's rays, predispose to scorbutic affections, and induce that state of system, known to vegetable pathologists by the epithet, *etiolation*. Winter favors the occurrence of inflammatory affections; summer, of bilious disorders and exanthems; autumn, of typhoid fever, dysentery, and intermittents; and spring, of active hemorrhages, and inflammatory states of the respiratory apparatus.

Nervous, strumous, and rickety affections are much more commonly met with in towns than in the country—allowance being made, of course, for differences in point of the *number* of inhabitants. Chronic cases are rare in the country, compared to acute diseases. Change of residence and climate, habits and dress, &c., predispose to disease. Living in crowded barracks, prisons, and hospitals, induces a diseased state of the secretions, vitiates the properties, and alters the distribution of the blood. Depression of spirits, consequent upon defeat, is almost immediately followed by attacks of dysentery and camp-fever among troops, during trying and prolonged campaigns.

2°, *Individual predisposing causes* are much more numerous than the preceding series, because a multitude of circumstances may act upon separate individuals, which seldom effectively concur in their operation upon communities; and also, because general predisposing causes, such as site, residence, &c. may act as individual predisponents. For the sake of method, this series of etiological causes is distributed into two orders, in the first of which are treated, such of them as are restricted to the individual.

2° *(a)* Diseases transmitted from parent to child, are styled hereditary. Some exist in the newly developed uterine germ—syphilis, scrophula, &c. Others present themselves about the second, third or fourth year—rickets. Pulmonary consumption is generally developed at puberty onward to the thirty-fifth and fortieth year of existence. Gout and apoplexy, respectively, during manhood, and toward, and after, the grand climateric.

There are diseases which, as has been said, are of much more frequent occurrence during one period of life than another. During intra-uterine life, hydrorachis and hydrocephalus are developed. At birth, what is called the jaundice of newly born infants, is observed. Throughout the first till the seventh year, children are especially liable to attacks of the exanthemata; to croup; hooping cough;

tinea; struma; and to invermination. Hemorrhage from the lungs, angina, consumption, bronchitis, are the characteristic diseases of adolescence; as "vapors" and piles, cancer and organic diseases generally, are, of more mature years. In old age, softening of the nervous and mucous tissues, passive hemorrhages from the vessels of the brain, lungs, kidneys, liver, bowels; ossification of the arterial tunics; disease of the valves of the heart; cerebral disease generally, and of the genito-urinary apparatus in particular.

By generalizing their observations, the ancients were led to believe that several diseases were more especially prone to be developed at particular *years* of life, than at others; and, further, that the ratio of mortality was then at a decidedly higher figure. Hence the epithet *climateric,* or "climacteric," *klima,* *κλιμα, inclination,* tendency, or proneness; or, *klimax,* *κλιμαξ, scale,* or degree.[1]

Sex. *Propter solum uterum,* aphorismed the ancients, *mulier id quod est.* The reactional influence of the *res in re,* upon the system, according to Dubois, is permanent; and it is the never-to-be-overlooked circumstance, in treating the pathology of the female system, that *a woman has a* UTERUS, which inspires and explains all feminine moral and physical anomalies, and which, to use Hippocrates' idea, makes the human female's existence, virtually, a long and painful disease.

Differences in degree, more than in kind, between the general diseases of males and females, are much more correctly attributable to *modes of life* and temperament, than to *sexual* difference. Hydrocele, sarcocele, detention of urine and stone in the urinary bladder, are instanced by Chomel and others (chiefly for purposes of exemplification) as in great measure peculiar to men; and crural hernia, hysteria, cancer of the breasts, &c., to women.

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[1] [Clim*a*teric, and not climacteric, is the preferable and proper adopted orthography, according to the rule usually adhered to by scholars in such matters, and also as willed by the spirit of the french and english languages. Climacteric, is obviously a spurious orthography, as improperly so anglicized from the "dog-latin" of clim*ac*tericus.]

Transcendental anatomy and pathology, however, tend to show, that females are not sexually exempt from the misfortune of bastard *hydrocele;*[1] and according to the experience of Villermé and others, lady-like susceptible young men are not (*quasi* 'males', after their kind) free from fits of equivocal and "catching" *hysterics.*

Temperament. The sanguineous temperament predisposes to active hemorrhages and acute inflammations; the bilious to hypochondriasis, bilious diarrhœa, indigestion arising from morbid irritability of the duodenum, to visceral organic disease, and to cancerous degenerescence. Individuals of the lymphatic temperament are prone to chronic "runnings," to dropsy, struma: and the nervous temperament renders its inheritors liable to hysteria, primary nervous melancholy, and to intellectual and moral insanity.

Constitutional vigor predisposes to acute and inflammatory attacks, less or more violent. Debility of constitution exposes to frequent and apparently slight diseases—the sequelæ being masked, and latent pathology and organic lesions, apt to run on, unperceived.

Profession and occupation induce particular diseases. Men of letters are subject to headache, wakefulness, dyspepsy, &c. Porters and postillions are liable to hernia; troopers, to hæmaturia, varicocele, and hæmoptysis; watermen, to ulcered legs; burly tippling tapsters, to delirium tremens, and to the "constitutional irritation" of Travers; bakers, wind-instrument players and showmen, to pneumonia and emphysema of the lungs.

2°, *(b)* In the second order of *individual* predisposing causes, are catalogued the following: prolonged sederunts in imperfectly ventilated dissecting rooms, interfering with the due oxygenation of the blood, and thereby inducing alterations in its properties and distribution; different agents of compression, such as tight cravats, tight lacing of the abdomen, compression of the lower ribs, interference with the action of the diaphragm, &c., in either sex. Improper clothing generally. Habitual debauches as respects food and drink, inducing dyspepsia, scirrhus of the orifices of the stomach, liver disease with duodenalgia and duodenitis. Profuse evacuations. . . . Diemerbroeck observed that the honeymoon of all those who married during the continuance of the *plague*, was interrupted within a few days after their nuptials. The suppression of natural or artificial customary evacuations, as of the hemorrhoidal and menstrual fluxes, bleedings, and the purgings *at the fall of the leaf* to *sweeten the blood*, so inconsiderately commenced by vulgar and illiterate valetudinarians—all, through the medium of active or passive *plethora*, dispose to general disease. So, too, of excessive or deficient exercise of mind and body, and of the want of due alternation of sleep, to recruit the expenditure of nervous and muscular power. Disease having once disturbed any function, or located itself in any of the tissues, morbid action of a similar or analogous kind is *ipso facto* extremely prone to be re-developed on the application of slight specific or occasional causes. Attacks of rheumatism, epilepsy, gout, typhoid fever, hysteria, in an undoubted manner, peculiarly favor their own recurrence.

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[1] [See *Archives Générales de Médecine* for 1834.]

Lastly, allusion must be made to a general and important condition, which, without fear of contradiction, may emphatically be pronounced *the* GRAND *predisposing cause of disease*, being the most fruitful of any, and that owing to which the population of the earth is continually being decimated—INADEQUATE SUPPLY OF THE NECESSARY PABULUM OF THE NOURISHMENT OF PHYSICAL LIFE—STARVATION. Be the progress of civilization what it may, general MISERY, among certain classes of the people, would seem to have ever existed, as in all probability it ever will exist. Population tends to increase, *pari passu*, with the comparative facility of procuring the means of subsistence. The apparently paradoxical operation of the pretended means of relieving or obviating this wretchedness, has been to *virtually increase population;* and hence, the augmentation again effected, be its *rationale* what it may, there is again, also, an equivalent amount of misery.

Such are among the views entertained by several. One position may be illustrated somewhat in this way:—Let it be taken for granted, that prior to the Irish making use of the potatoe as an article of diet, the sum of national misery in that provinced portion of the british empire, was equal to, and represented by, a given figure. Very well: with the increased facility of subsistence effected by the successful introduction of this aliment, the distressed population of Ireland has increased—doubly—triply. And thus, the gross amount of catholic misery, which clings to, and which is, as if companioned with, the crushed population instanced, is still essentially equivalent, at the least, to the assumed original representative figure.

What are the pathological effects induced by excess of population?. . . . A hospital of disease—an uninterrupted series of harrowing distress—Scrofula in every form—low chronic inflammations of the digestive organs—tinea—every malady, in short, in the catalogue of affliction, by which human flesh, impoverished by starvation, and particularly if also fretted by intellectual and moral gallings, is assailable—meets the philanthropist's eye, while surveying the condition of an exceeding population, such as that instanced.

The diseases named, from among many, are the sapping parasites invariably found in the wake of wretchedness. It is upon over prolific populations that epidemics alight with such Briareus energy, and effect their diffused and murderous harvest. The application of the remedy—*preventives* rather, rests not with the physician. The power of effective resistance to the evil under notice, exists neither with him, nor with any individual class of men, how enlightened soever. *The* APPLICATION, *to be efficacious*, MUST BE GENERAL. Patriots—friends to posterity, may inquire, Will the fulness of time—will the age of diffused right moral, as well as well as right intellectual enlightenment, consummate the remedy desired?

A means of remedial prevention, and the term involves no real paradox—has been pointed out by Malthus, and popularly advocated by Miss Martineau. But *their* means, MORAL CONSTRAINT, never will—never can be put in general *passive* operation, till Human Nature is appetitively re-organized and re-functionated. How to propagate and keep up the desired sexual anorexia or abstinence, inculcated, as the *sine qua non* by the MALTHUS-MARTINEAU School, *is,* indeed, a political problem to be solved! Philanthropists, and minds not of "great," but *ballasted* intelligence, throughout the self-thinking communities of the present day, have difficulty—not the smallest, in fully comprehending, that ALL INCREASE OF POPULATION, *as demanding increased means of support,* SHOULD (if possible) TAKE PLACE *in* a *ratio, corresponding with the* arithmetically *determined* SUM OF THE MEANS OF SUBSISTENCE: and also, that IF NO RESTRICTION BE PLACED UPON THE non-*arithmetical* INDULGENCE OF THE APPETITE IMPLANTED, IN SUBORDINATION TO THE GREAT *un*SUSpended LAW—INCREASE AND MULTIPLY,—HUMAN MISERY and STARVATION, (*if* arising, *intrinsicly,* from this cause, and not rather from general *political,* and therefore *remediable* causes,) MUST UNAVOIDABLY BE INDUCED, *with all their social, political, and pathological consequences, upon the prospects and progress of society.*

In short, while THE STUDENT OF PATHOLOGY must not lose sight of the most productive predisposing cause of wholesale disease—namely, *relative extrinsic excess of population,* and its pervading consequences, levelling upward from the pauper to the peer, as a physiologist, and as a practical datum-supplied thinker, he cannot but perceive, that however commendable in Theory the Malthus-Martineau check undoubtedly *is,* yet, so long as there are living organs adapted to act, the functions with which, for a providentially all-wise purpose, they have been endowed, will be operatively manifested.

> The world must be peopled,—

as Benedict is made to so say. People *will* "people." History—philosophy teaching by example, shows, that human pullulation has gone on—in the teeth of famine. What *has* been, *may* be. Organizationism is organizationism. Flesh is flesh. When will the fruits of a necessary, but heretofore unstatesmanlike-neglected acquaintance with the LAWS of HEALTH AND DISEASE—the great and only sure sources of a knowledge of *Human Nature*, be manifested by the SOUND LEGISLATION OF RESPONSIBLE GOVERNMENTS?

OCCASIONAL OR EXCITING CAUSES. These, as was said, provoke the manifestation without determining either the nature or the "seat" of diseases. When predisposition to disease is once established, a single occasional cause may produce the most different maladies. Hence the difficulty of satisfactorily showing the relation and concordance of such and such an "occasional cause" with such and such a disease, or even with a given species of disease. There are many disorders named *internal*, which attack individuals, apparently in perfect health up to the instant of seizure, without the intervention of any appreciable occasional, or even predisposing cause. Doubtless there must have been a predisposition in the economy, yet, of a kind unknown to us, because eluding our available means of exploration.

Among the chief occasional or exciting causes of diseases, may be enumerated—the impression of very cold air; sitting in a damp apartment; currents of air; exposure to rain; damp clothes; scanty regimen; suppression of habitual evacuations; prolonged wakefulness; violent moral emotions, as joy, terror; repercussed eruptions, &c. All these and other kindred agents, differ from predisposing and specific causes, in not belonging to any affection in particular.

Diseases, in respect to the causes which develop them, are variously distinguished: thus—*innate* or *congenital*, those presented by an infant newly born: *acquired*, those which commence after birth, and which do not depend upon hereditary tendency: *sporadic, (Speiro,* Σπέιρω, I *disperse,* or *sow here* and *there,)* those attacking an individual, only, at a time. *Pandemic* diseases attack several simultaneously. They are divided into, 1°, *endemic (en,* ἐν, *in* or *among; demos,* δῆμος, the *people)*—those which reign, continually or periodically, in given localities, as produced by a concurrence of local causes, acting uninterruptedly, or periodically, as goitre and cretinism in the gorges of the Valais; marsh fevers, &c. 2°, *Epidemics (epi,* ἐπι, *upon; demos,* δημος, the *people:* i. e. as if *alighting upon the people).* Like the preceding, they attack many at once, but they have only a limited duration, and re-appear at irregular intervals. Diseases, styled *contagious,* as will presently be stated, are often distinguished with difficulty. In establishing the distinction, which is very important, two circumstances—*inoculation* and *importation,* must be carefully attended to.

Atmospherical Constitutions, and *Medical Constitutions* must not be confounded together. The former title is applied to particular states of the atmosphere, indeterminate in their duration, and variable in their extent over the country. An *atmospherical* constitution is declared by a particular order of diseases, and this is owing to an influence, equally general and potent, upon the dynamics of the animal economy. Several physicians have instituted researches, with a view, if possible, to establish the relation subsisting between these otherwise unknown atmospheric conditions, and the prevailing maladies. A kind of family resemblance, or common physiognomy, appears to obtain between diseases depending upon such constitutions.

The difference between atmospherical and epidemical and endemical constitutions, is marked. Dubois and others understand by the former such an aggregate of circumstances, as by its general influence so modifies individual disposition, that diseases which are superinduced have remarkable analogies, one with the other: and further, that those which have commenced prior to an atmospherical constitution being declared, take on the numerous and characteristic analogies, distinctive of them.

The pathological results of the constitutions in question were carefully and philosophically studied by such men as Sydenham, Baillou, Stahl, Baglivi, Fouquet, and other great observers. The moderns are again becoming sensible of the necessity of reviving these interesting and important studies, which, through culpable remissness, have been allowed to fall into temporary disuse. By all among modern physicians, who regard diseases as anormal *reactions* of the organism—Anormal, because set up by pathological instead of by hygienic stimuluses—the value of such a study will be at once recognised.

Medical, differ from atmospherical constitutions. The former must be sought for and studied, in the totality of reigning diseases;—in their generalized relations and analogies, throughout the spring, summer, or winter seasons. An atmospherical is frequently *manifested* by a Medical constitution; but not uniformly nor necessarily: its existing causes, as inferred from its effects, must be *without,* or external to the organism. The medical constitution, on the other hand, whether induced or not by the atmospherical constitution, consists in an aggregate of general modifications, impressed upon every individual affected *during some* EPOCH,[1] and in a given, definite, locality.

There is not always a concordance between the different states of the atmosphere and the reigning maladies—i. e. between *atmospherical* and *medical* constitutions. The cause of the exceptions, though imperfectly, if at all, known, must, nevertheless, not be overlooked, in studying the points of their agreement.

The study of medical constitutions is particularly valuable with regard to the *seasonableness* of the administration, or, what the french expressively term the *opportunity*,[1] of different curative agents. Lose no time in employing *this* remedy whilst it will yet cure, said a practitioner. In fact, under the sway of a given medical constitution, some therapeutical agent—say blood-letting, possesses a power over the course of all the diseases of the reigning Constitution, which seems miraculous; but the singular thing is, that the instant the particular medical constitution is superseded by another, the blood-letting, or previously efficient means, falls into utter discredit—having, possibly, not only lost its specific charm, but when administered, becoming, as it were, an unequivocal aggravator of the symptoms. The english Hippocrates, who, as is well known, made a particular study of Medical Constitutions, is represented to have figuratively said, that at the beginning of each new medical constitution, he began by *killing a few* patients, in order to benefit the rest by the painful experience he gained of the *peculiar* NATURE of the reigning disease.—"This, however I (Sydenham) am convinced of, from numerous careful observations, that the same method which cures in the middle of the year, may possibly prove destructive at the conclusion of it: when I had once happily *fallen* upon a genuine method of treating any species of fever, *suitably to its nature*, I always proved successful *till that species became extinct* and a *new* one arose, when I was again doubtful how to proceed, and, *notwithstanding the utmost caution*, could scarce ever preserve my first patients from danger, *till* I had *thoroughly investigated the* NATURE *of the distemper*, and then I proceeded in a direct and safer way to the cure."[2]

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[1] [The terms *epoch, era,* and *period* are unfortunately employed very loosely in medical writings.

1°, EPOCH, in greek, *a stop,* properly signifies—a remarkable *date.* 2°, ERA is of spanish origin, and should be restricted to express an *indefinite* series. 3°, PERIOD should be used and received as representing a *definite* series of time—commencing from a specified epoch.]

The attention of british clinical students has never, at least of late, been sufficiently directed to the study of Atmospherical and Medical Constitutions. The investigation as to the influence of variations in the *Electrical*

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[1] [*L'opportunité* des divers agens thréapeutiques. *Dubois.*]

[2] [Cyclopædia of Practical Medicine Vol. II. p. 215: and Traité de Pathologie générale, par E. Fred. Dubois. Tome I. p. 84.]

Conditions of the atmosphere upon the organizationism, during fluctuating states of health and disease, is happily re-exciting the inquiries of pathologists in this country and in America, as throughout the continent of Europe, to those general *practical views,* and to those *successful modifications* in the treatment of special diseases,—*special,* from the interpreted but meanwhile indeterminate relations of a concurrence of natural and other causes, tending to make them run through their course, *for the time being,* in obedience to certain meteorological, pathological, and phyological laws,—which, and the appreciation of whose phases, the connected application of the facts already made known by the observations of Dr. Dalton, of Manchester, and others, and of the inductions from the valuable meteorological researches of professor Forbes of Edinburgh, are so calculated to prompt and further.[1]

Medical Constitutions will be practically reconsidered in their proper place, in a different relation. To break away from occupying more of the now limited space of this volume, with the here sufficiently indicated subject, the student will note, that it is conformable to the *nature* of their declared pathological effects, that MEDICAL CONSTITUTIONS are distinguished, from each other, by such general epithets as *inflammatory, neuralgic, typhoid.*

Diseases are further distinguished by the terms, *essential, primary, idiopathic* or *protopathic* (*idios,* ἴδιος, *proper* or peculiar; *protos, πρῶτος,* promptly: and *pathos, Πάθος, diseased:* and, in the phraseology of the schools, others are *symptomatic, secondary,* or *deuteropathic (deuteros, δεύτερος, secondary).* The former are such as immediately result from morbid causes: the latter depend upon another affection, of which, properly speaking, they are merely symptomatic. Hemorrhage occasionally is symptomatic, and at other times is essential, in as far as being unconnected with any determinate or practically trustworthy lesion, of the organs, from which it *sensibly* proceeds.

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[1] *Electrical states of the Atmosphere.* The effects of electricity have been much more rigorously appreciated as regards physiology, than in respect to pathology. It is to be hoped, as M. Dubois observes, that the latter science will speedily be advantaged by the researches made by physiologists upon this interesting subject. It is in the nervous system, that perhaps the most remarkable phenomena are to be looked for: "not that there is any identity between the *nervous* agent and the *galvanic* fluid—M. Porson's researches go to prove the contrary—but because the anormal modifications should naturally be declared when electricity is accidentally accumulated in the different organs. Dr. M. Edwards says, that these modifications vary, according to the nature of the organ, and according to the intensity of the electric charge. *It is multiplied and delicate* EXPERIMENTS, *which can alone furnish a satisfactory history of the modifications which the* ELECTRICAL STATES *of the Atmosphere induce,* upon the physiological states of man" [and of all organized living beings]. *E. F. Dubois.*

It is at times easy to pronounce whether a malady is primary or secondary. In cancer of the womb, when advanced to a certain stage, the habitual discharge cannot pardonably be mistaken for uterine catarrh, and the hemorrhage which appears at intervals, cannot be considered primary. But it is otherwise at the commencement of the disease, when the neck of the womb has not assumed the hardness and anormal physical characters, diagnostic of the disease.

Practically, for purposes connected with just prognosis and appropriate treatment, it is of the greatest importance to distinguish idiopathic from symptomatic diseases. Essential hemorrhage, ordinarily, is a mild affection—requiring tranquility of mind and body, or reducing treatment: typhoid and "scorbutic" hemorrhage demand the most opposite remedies. That symptomatic of cancer of the womb or of the stomach, is beyond the direct control of medicine. These instances will suffice to show, what serious blunders may emanate from confounding cases, in nature so opposed; and also, how indispensable it therefore is, for the practical man, to distinguish them.

The time which intervenes between the application of pathological causes and the development of maladies, presents numerous differences. There are diseases which are sensibly produced, simultaneously with the application of their several causes—bruises, wounds, fractures: or, an hour or so may intervene—*e. g.,* inflammation consequent upon the application of a rubefacient: three days, as after the absorption of the vaccine lymph. Acute rheumatism, it is said, frequently does not show itself till fourteen or fifteen days after the morbid impression of cold: syphilis, three or four weeks after impure coition; and, in general, the symptoms determined by the saliva of a rabid animal fail to appear in adults, till on or after the fortieth day from the receipt of the envenomed bite.

The period of INCUBATION has, by others, been applied to the interspatium between the application of the elements of contagion, and their declared effects, after being multiplied in the blood; and of morbid causes in general, upon the system. It is almost always impossible to exactly estimate the interval which takes place between the application and the operation of predisposing causes. Some of them are inherent in the constitution of the individual, as age, sex, temperament. Lastly, as to occasional causes, the development of the disease is always, or very nearly, immediately consequent upon their application.[1]

SPECIFIC CAUSES IN GENERAL. The actions of the class of causes to be noticed under this head, are wholly special: hence the value of the characteristic title. Their influence induces effects, less or more uniform, in the human economy. Yet there is far from being foundation for that exaggerated extent of alleged identity in the morbid results determined by them, which some authors seem to believe, and would have others take upon trust. For didactic purposes, the best, as it is also the most natural mode, of treating of them, is to proceed upon the distinction, 1°, of such as are *non-contagious*, and, 2°, of such as are, or are believed to be, *contagious*.

I. *Ordinary specific causes* may be diffused through the atmosphere, brought in contact with the body, or introduced within the organs. They may exist within us, and depend upon disturbance of the evacuations, movements, sensations, perceptions, emotions, &c. They are here indicated according to the order generally observed in the expositions of hygiene, therapeutics, and of various sub-departments of general disease-discourse.

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[1] [*Chomel.* Elémens de Pathologie, from pages 61, onward to 130. *Dubois.* Op. cit. passim. And for other general views and particular details, see Chapter V. of *Dr. Alison's* Outlines cit. "Remote Causes of Disease in general," pp. 348–361.]

1°, *Circumfusa:* non-respirable gases, *e.g.* azote, hydrogen, &c.: deleterious gases—carbonic oxyd, carbonic acid—air loaded with the effluvia arising from animal bodies—prisons, crowded places of assembly, as theatres, popular or fashionable churches—exhalations from burial grounds, &c. Air charged with certain vegetable vapors, occasions intermittent fevers. Metallic vapors, also, range among the specific causes of disease—the *painter's colic,* arising from lead—knife-grinders' *asthma*—carver and gilder's paralysis, &c. Too high, or too reduced a temperature, also acts as an occasional specific cause of maladies, included under the head of "circumfusa."

1°, *Excreta.* Retention of urine (detention of the secreted fluid within the bladder) has produced rupture of the urinary viscus. Retention of the menses has occasioned painful distension of the womb, and thereby favored the suspicion, by inducing several of the prominent appearances, of pregnancy.

2°, *Gesta.* Violent and sudden contractions have again and again produced hernia; rupture of the *Tendo Achilles,* &c. Prolonged wakefulness induces many diseases.

Certain maladies may be the special determining causes of other diseases. Intense inflammation of the parotid gland has caused asphyxia. Fractures, luxations, and strictures, have determined the forming of abscesses in the cellular tissue. Perforation of the stomach; rupture of the gall bladder, uterus, or womb; erosion of the intestines, as by an ulcer—are each and so many causes of peritonitis, running on to a fatal termination by interfering with, and, ultimately, by arresting, the moving powers of the heart and blood vessels.

So, too, of the presence of parasitical animals in the living system, *ex. gr.* tape-worm, ascarides, hydatids. Their presence does not always produce similar morbid phenomena; but the maladies which arise through and by them, are always similar in essence, how varied soever they may be, in point of mere form.

3°, *Percepta.* Violent emotions have occasioned innumerable diseases. Fits of passionate "ill-nature," and violent displays of what by nurses is styled *temper*, among infants and children, have caused a rapid decay, the real root of which was, perhaps, either never suspected, or discovered with difficulty.

The hearted desire of the exile to revisit the scenes of his childhood or his father-land, when not gratified, have caused a peculiar irritational or hectic state of the general system, in which symptoms arise, akin to those induced on delicate females, of acute sensibility, by religious melancholy, or by disappointed hope. Despair, terror, immoderate joy, love—have occasioned instant death. The records of history and the explanations given of cases met with, in every day's practice, exemplify the indisputable etiological influences of intense mental emotions upon the organization. Tristram Shandy compared mind and body to a coat and its lining—"if you rumple the one, you crumple the other."[1] It is chiefly through the medium of reciprocating sympathies and the effects caused in turn by sequelæ and animal organic reaction, that many, and particularly chronic, diseases, tend to become more and more tenacious and complicated. The records of medicine abound with interestingly detailed cases, illustrative of the pernicious influence of fear and horror. Several examples have been published by Dr. Graves. M. Magendie in his lectures on the blue plague epidemic of Paris, under the phrase *abattement*, or *idiotisme cholérique*, alludes, to the effects of choleraphobia. Dread of the disease in question, reduced individuals of otherwise acknowledged firmness and approved bravery, to a state of imbecility bordering upon the helplessness of cretinism.[2]

Other intense emotions have proved instantly fatal.

[1] [Dr. Paris on Diet.]

[2] [London Medical and Surgical Journal, Vol. II.]

When abruptly informed of the defeat of his troops, the heart of the fifth Philip of Spain burst, occasioning instantaneous death. Sacred History abounds with similar cases. Thus, on hearing from the man Benjamin, that the ark of God was taken, and that his sons were dead, Eli, "an old man and heavy, who had judged Israel forty years," swooned from his seat, fell backward, and met his death.[1]

When the bodily powers have been sapped by prolonged suppuration, consumption, painful diseases, a trifling emotion may prove fatal. So, too, in cases of exhaustion from prolonged fatigue and accumulated emotions, as of joy and rapture. Illustrative of this, we have the instance of the patriotic soldier, who ran from the victorious plain of Marathon, direct to Athens, and, while in the very act of communicating the glorious tidings to his rejoiced fellow citizens, dropped down and expired. Chilon died suffocated with joy, while embracing his son—declared a victor at the Olympic Games.

As the spanish fly, or blister beetle, is described by naturalists to expire, so, in like manner, it is said, not one, but, both of *the* italian lovers (by way of eminence) expired, simultaneously, in ecstatic embrace.[2] A kindred fate was shared by the libidinous old man, mentioned (*qu.* by Plutarch?) as having breathed his last on the night of his "December and June"-like, nuptials. Excessive joy proved fatal to Sophocles, Euripides's rival, when laureled for his appreciated tragedy: and, on the return of the Legion of Honor, covered with wounds, from Thrasymenes and Cannæ, many of the roman ladies expired, while embracing their war-trophied sons and husbands.[3]

The abused beliefs in Mesmerism—Animal Magnetism, the reputed miracles of the deacon Paris, and the visions of the pseudo-Apocalypse—accredited by some otherwise great minds—were truly less than nothing, than vanity, compared with the baneful influences (how potent in moral, intellectual, and physical mischief!) which attended the irreligious "rows," got up by the happily suicided schism, of fanatical Rowites:—the "whip-whoo-girosto" screechings of the misguided seraglio of Irvingites, and the now fræ-num-*cut* UNKNOWN-TONGUE votaries, of—"the New Road." These endemic, and partially contagious visitations, in *Old* England, which, though meriting, at least, a portion of the attention of the philanthropist and medical philosopher—particularly in connexion with, what may be styled, a herein also neglected department of Medical Police, and though operative as etiological agents—can only thus be indicatively glanced at, in connexion with the question—Have they not in point of national humiliation, as in point of their etiologico-intellectual, moral and physical vitiations, far transcended those characterizing, the occasional morbidly susceptible, transatlantic *morale* and *physique*—as the disgusting orgies of the Whispering—Shaking—"Let-us-labor" sects of fanatics, degrading *New* England—so graphicly depicted by Mrs. Trollope and other eye-witnesses, in addition to the moderated descriptions of the historian Murray?

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[1] [Samuel I. chap. iv.] [2] [*Credat Judæus.*]

[3] [Elements of Materia Medica and Therapeutics, p, 76—by Dr. A. Todd Thomson, of London.]

5°. *Applicata.* This division includes wounding instruments; corrosives; incandescent bodies; various *poisons,* which, according to Chomel and others, markedly differ from *viruses.* Thus, the formation of poisons is continual and independent of any functional disturbance: their effects are promptly declared, and not propagated from the sufferer to any bystander, let the state of his organizationism be what it may. A *virus,* on the other hand, is only accidentally engendered, by the *actions* of diseased organizationisms. Further: viruses act slowly, and are reproduced and propagated by the very constitutional disturbances which they induce, and are *so* multiplied, less or more, throughout certain of the individuals composing communities.

Poisons, of every class, may be considered as specific causes of disease, not because each of them *invariably* produces a series of identical or determinate symptoms, but, 1°, forasmuch, as, poisonous agents occasion symptoms, which cannot otherwise than be referred to, and explained by, their action; and, 2°, because their general *specificity*, is such, that it serves as the physiological and pathological basis of their classification and study: thus some are said to be *irritants*, others *narcotics*, *narcotico-acrids*, and *septicals* or putrefactives (*e. g.* ergot of rye).[1]

A remarkable difference, as is here repeated, subsists between *specific* causes—warranting the two-fold division made of them. The second sub-class consists of those which induce diseases, producing elements capable of communicating precisely similar maladies, in comparatively healthy individuals: and, it is this last curious circumstance, which, in pathology, is named CONTAGION.

According to Fracastor, the cause of all contagious diseases, consists of a specific virus, which is exhaled from affected bodies. Though extending only to a limited distance, the virus, nevertheless, attaches itself to various substances, and thus all its properties may be preserved during thirty or forty years, and be transported with such bodies, to immense distances. Agreeably to the notions of this author, straw, cloth, bales of goods, insects and "what not," may thus transport with them, various viruses; and so disseminate infection through immense bodies of people. As remarked by Rouchoux, what otherwise is absurd in Fracastor's system, is estimating at nothing, such among the most unequivocal causes of the diffusion of contagion, as huddling sick living beings together; Malthus-Martineau starvation; demoralizing agencies; emanations from sinks; vegetable and animal matters in states of putrefaction.[1]

[1] [*Dubois*, op. cit. pp. 73-74, t. I.]

[1] [Fracastor's *creed* is not very contagious. Professor Dubois, says it reckons few avowed, partisans—few indeed who venture to sustain *in the present day*, its various "points," as emanated from the brain of the Inventor. He also thus remarks upon the present absurd and un-datumed, or postulated, code of quarantine regulations, which never will be re-constructed upon philosophical grounds, but will continue, as heretofore, mere political or party make-shifts, so long as statesmen continue ignorant or unadvised of the laws swaying the objects constituting that sub-department of Natural History called PATHOLOGY.... Le système de

It is supposed by some, that the contagious element necessarily resides in a material body: that one while, it is propagated by immediate contact—at another, through the medium of the air. The symptoms produced by contagious elements, are well determined, and in every case essentially similar. A specific propagated cause is not, however, essentially necessary for the production of the symptoms of some contagions. Itch, syphilis, small-pox, measles, scarlet fever, cow-pox, canine aud feline madness, are all essentially contagious maladies; and yet they may arise without the action of any contagious element, or component, produced from the perverted actions of other victims. Independently of the fact of their primary existence—sufficient of itself, to prove their spontaniety—the practitioner, whose services are in daily request, meets cases occurring without any appreciable cause. Many others, with Dubois, believe in the spontaneous or *sporadic* development of syphilis,—i. e. owing to a concurrence of causes adulterating the genital secretions of *filles de joie*, and of their gregarious paramours, short of a deposit of any independently existing contagious material.

Rouchoux subdivides contagious diseases into:—

1°, Diseases, which are *contagious* by *a germ*—Itch, syphilis, rabies, small-pox, cow-pox, measles, scarlet fever: and,

2°, *Diseases*, which *are contagious* without *a germ, or whose germ is easily destroyed*—typoid fevers, hospital, camp, and jail fever, &c.

The invisible element of contagion, whose existence is known to medical men solely by its effects, is ordinarily enveloped in a tangible body, such as mucus—pus—cutaneous excretions—saliva—blood. These animal products are not contagious, *per se*. True. Nevertheless, there is anything but necessity, for boldly assuming that the conta-

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Fracastor n'a plus guere de partisans avoués, personne n'ose plus le soutenir anjourd'hui, tel du moins qu'il est sortir du cerveau de son inventeur; *et si quelques* GOUVERNEMENS *s'obstinent encore à conserver quelques institutions basées sur les idées de Fracastor, ils y sont plutôt pouseés par des* vues d'intérêt POLITIQUE *ou* PARTICULIER, *que par* l'intérêt SANITAIRE *des* POPULATIONS.]

gious property could not occur, without the super-admixture, of a postulated SUBTLE MATTER—*the* agent of contagion. As Chomel observes, it is very possible, that pus, mucus, saliva, and so forth, become contagious, *solely* through a *change* in the *proportions of the elements, respectively constituting them.* This is not only possible, but highly probable, in respect to the most ferociously operative of *vegetable* aërial *poisons,* or contagions. The most delicate chemical analyses have failed to detect any, or rather have negatively and strongly proved, that there is no absolute change—no absolute absence, of any of the chemically known elements of vegetable remains, in places, where, nevertheless, in sensible and in otherwise interpreted connexion with vegetable decay, marsh fevers of a most malignant type, periodically prevail.

Of Rouchoux's contagions *by-germ* diseases, there are three, which seem to produce most subtle means of infection. Frequently, they have operated through no other conceivable medium than the air. Such means are not only invisible, but also, completely elude, all our meanwhile possessed physical agents and modes of investigation.

With respect to groupe 1°, it may with every confidence be asserted, that syphilis, rabies, itch, small pox, measles—act contagiously and by a poison communicated from a diseased to a [*in that respect, at least*] healthy individual; but, is it equally so, as regards typhoid fevers? Dubois and others emphatically say "no." In the existing state of science (which is every thing to sound *living* self-thinkers, as was said) there can be not the least doubt, respecting one,—plague. Hence Rouchoux is constrained to slide in, what lawyers term a *saving clause,* namely, to effect that, the germs of some contagions are easily destroyed. In fact, the influence of external causes, such as arise from the fluctuating conditions of the seasons, electrical states of the atmosphere; and aliment—must be recognised as constantly operative, in regard to all typhoid forms of fever, and some other postulatedly considered, absolutely and and solely contagious-*by-germ* diseases.

Can it be refused that nothing, truly, can well be more obscure, than the mode of the propagation of those typhoid forms of disease, which, while naturally *en*demic in one country, also spread *epi*demically in another? Is it otherwise, than that there ever was, obscurity, respecting the primary origin of typhoids being satisfactorily traced to a human virus of primarily extrinsic existence? Even ultra-contagionists—(those who, like one-eyed travellers toiling along a highway, contract a habit of being able to satisfactorily *perceive*, only what exists on a particular side of the fence, unless by submitting their sensal and mental organs to exercise felt as irksome and peculiarly inconvenient) have failed herein, in the majority of such inexplicable cases.

We know nothing of the local causes inducing the *yellow fever* in the Antilles, and the *cholera* of Bengal, Bombay, Goa, &c. This, however, is well known, that these diseases are not communicable like other markedly contagious diseases, from a diseased to an otherwise healthy individual. Navy and Army surgeons can occasionally predict, with all but perfect certainty, when, from a particular concurrence of causes, ship, camp and hospital "fever" will spring up and spread among the marines and troops. By the strict observance of appropriate rules of Hygiene, Chervin maintains, that typhus may always be prevented; and even should the *development* of that disease, generated, as it is, by want, filth, and huddling, not be obviated, its *propagation* beyond sporadic cases, may:—Not, however, continues this philanthropist, by "sanatory [query *sanatory?*] cordons," "lazarettos," and "quarantine jobs," but by measures the very contrary; namely, by dispersing the sick, as much as possible, so as to prevent the generation of an intensely virulent virus, consequent upon huddling and cooping the "compromised" up, like so many fowls undergoing a preparation for death, or the market. It is proved and settled, that in certain appreciable circumstances, *typhus* becomes transmissible by *miasm*ed air, and that it is propagated by persons inspiring air, so charged with the infection.

Yellow fever has refractorily made headway against every means of isolation, hitherto devised or practised, with a view to check its extension. The most authentic of a mass of documents, go to prove, that yellow fever is evidently the product of an effluvial infection *in the air* of certain localities, and not of a germ-contagious element, or morbid proximate principle, susceptible of being imported by persons affected, and from them communicated to, and in turn spread from, the previously healthy among those who hold communication with them.

Plague's history in this respect, is yet shrouded in obscurity. Nothing can well be more doubtful than many of the alleged "proofs"—either as to its being contagious, or non-contagious. A vast majority, nevertheless, of european physicians, who have witnessed its course in the Levant, and in the north of Africa, declare their belief in the contagious properties of plague.[1]

Cholera seems, in very many points, to obey laws similar to those of yellow fever. Locality, and a thousand and one circumstances seemingly insignificant, but above all, abrupt meteorological changes—appear to determine, or to modify the extraordinary anomalies and caprices of this malady, which, in its origin, seems either sporadic, endemic or epidemic; and in certain circumstances, also, it would seem to be contagious. A review of all the known facts in the observed behavior of this epidemic pestilence, so recently scourging the dense and wretched portion of the un*staminaed* population, throughout the cities and towns of Europe, *unfortunately* militates against the injuriously confided in, and overacted upon, belief, that it is *chiefly* if not *exclusively* propagated, by the previously healthy inspiring the air, or coming into contact with media, charged with effluvia, given off, from the bodies of the dead and of the dying. It would, indeed, have been fortunate for the inhabitants of districts declared "compromised," (by foul bills of health issued against them,) had the epidemic in question been *chiefly* extended by *contact with the sick*, or with the emanations from *their* persons. Isolation, to the extent practised, *would* have acted as an unequivocal check, upon the progress of an immediately, and truly, contagious disease. Yet, was it so?

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[1] [During a conversation which I enjoyed (in August, 1834) with Dr. Clarke, (sixteen years resident as physician at Smyrna,) the singular fact, which so particularly merits the notice of medical philosophers, was communicated by that gentlemen, namely, that while the plague introduced *via* Alexandria is *tenacious and fatal*, that "brought" from Constantinople *never* has been known *to extend beyond the second case!* This may be relied on, it seems, as an ascertained fact, stamped with the signet of experience.]

[2] [In all epidemics, and during the prevalence of reputedly contagious diseases, there are persons who brave a concurrence of related dangers with impunity. Thus the venerable Belzunci—the PATRIARCH of Marseilles, during the pestilence which decimated the inhabitants of that town, continued in perfect health, although uninterruptedly in contact with the victims, upon whom he profused attentions of every kind.

During the black plague of 1347, which ravaged the South of France, out of thirty-five *religiosoes*, inhabiting the *chartreuse* of Mont-Rieux, one, only, escaped the contagion—the Monk Gerard, (brother of the celebrated Petrarch,) who sick-nursed the fraternity, and sewed them up, one after another, as they died.]

According to the almost unanimous opinion of the ablest and most data-supplied thinkers, among the medical observers of its progress in the East—cholera, particularly in Hindustan, was not immediately contagious. Yet supposing that it really was not, there is, in the nature of things, no just foundation for averring or inferring, that a disease which is not at all, or only equivocally contagious in *one* hemisphere, could not, from a concurrence of causes, become virulently and unequivocally contagious, when developed in *another*. Whether this was the case in respect to the blue pestilence, as it raged, and as it yet partially prevails, in European cities, admits of the greatest doubt: and this, from the simple fact, if it stood alone, that the malady has pursued its course, in defiance of every means devised and acted upon, on the postulated faith of its being immediately contagious. Unfortunately, its chief media (or medium) of extension, seem to consist in (or, is) an *atmospherical* CONSTITUTION. Hence the probable explanation for the majority of its trivial or minor anomalies, as observed in the cholera of one district, contrasted with the traits of those of the epidemic in another.

1°, Diseases, which were prevailing and passing regularly through their stages, in obedience to the ordinary laws subordinating their phases, were observed, to less or more suddenly *take on*, or *run into* the cholera form: while 2°, in various parts of a city, town, or district on the same night or occasion, *various* individuals, in the enjoyment of their usual latitude of health up to the hour of instantaneous general seizure, were simultaneously attacked with the pronounced symptoms of this, chiefly, aërially spreading poison. In such circumstances, how appropriate, then, the designation—*epi*DEMIC (to all chiefly aërially spreading poisons, alighting or dropping, as it were, from the atmosphere—the great vehicle of their etiological influence) *upon* THE PEOPLE.

All contagious diseases may be epidemic: but, diseases, when epidemic, are not necessarily, *therefore*, also, *im*mediately, contagious. Many, however, are; and, others—and, cholera, in the most unequivocal manner, perhaps, in *this* country—may become so. These facts enable medical men, who do not exclude them from consideration, to recognise, that the causes which make maladies, take on an epidemic form, are exceedingly various and fluctuating; as also, in great measure, they are unfortunately unknown *otherwise*, as yet, *than by their effects.* Human immediate contagion is but, at most, *one*, and that too, probably, a very dependent cause, among many, in the propagation of epidemic cholera.

In fine: The whole "facts," as meanwhile redacted, upon the question of contagion and non-contagion, *(particularly as regards* ep*idemics,)* needs sifting revision. The vexatious absurdities of the *present* QUARANTINE CODE are cryingly disgraceful. They label, as well as libel, the NATIONAL UNDERSTANDING.[1]

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[1] [What opinion can neutral parties seriously entertain, first, of the "principle" of an EMBARGO being laid upon goods carried *by sea*, from ports declared "foul" by bills of health, while every possible facility is enjoyed, without hindrance, for the indiscriminate exchange of goods conveyed *by land*, from districts affected with pestilence? Second, that laymen and ultra-contagionists should always endeavor to trace the eruption of pestilential visitations to "some *ship*," having

Traumatic (from *trauma, τραυμα, a wound)* causes in general, have ordinarily a sufficiently appreciable specific action. In the majority of cases the disturbance consequent upon wounds remains local. A reaction is established, which runs its course, and ends in local well-being, without the heart and nervous centres taking part in the disorder. Contusions, burns, extensive solutions of the continuity of the tissues, &c. may, however, occasion violent constitutional disturbance, and death. The constitutional tumult may be induced by the mere intensity of the reaction, consequent upon the shock experienced by the nervous and circulatory systems, upon receipt of the injury, or by one of the elements of vital organic reaction.

In every reaction, the nervous centres are first affected, next the circulatory centre. A shock may be so intense as to kill the wounded before the vital dynamics of the circulatory centre are influenced. In such cases, the influence of the *morale* is great. Excessive fear may render an accident, in its nature not at all directly dangerous, fatal in a few hours. But the great field of danger is in the amount and kind of the manner, in which the *vascular* system is impressed by the shock and irritation arising from injuries. The pathologically accelerated circulation, in such cases, frequently provokes severe visceral congestions. All the consequences of inflammation may thus be set up—with casualties, which, so to speak, set wheels within wheels, in the living machine, in action; and the effects of which, *act* and *react* upon the injured part, and upon the general system, and ultimately exacerbate the actions of the various sequelæ determined by them.

In cases of physical or chemical injury, the local irritations and inflammations induce general or constitutional

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entered "some *port*," *after* leaving "some place," with foul bills of health—never estimating the *atmospherical* constitution, and the fact of communication, as in the case of the cholera epidemic—being left so free and unfettered, that goods, and visitors, *with the disease*, already *germinating* in *them*, were circulated through almost every town of the kingdom, as *direct* and rapidly, as four horses—steam—and the pervading stimulus of an appetite for gain, could effect? . . . It is unnecessary to repeat the remarks already submitted, in the foot note at page 51.]

irritations—FEVER. The fever induces congestions in the great cavities. These congestions, which were only effects, in the first instance, become, in turn, most operative causes of other effects, not less severe. Lastly, the consecutive effects sap the system. By *consecutives,* must be understood, those suppurations and purulent deposits and reabsorptions, which are detected after death, or whose presence is declared or suspected, by obscure and anomalous symptoms, in the cellular membranes in the vicinity of the wound, or injury; or, in the calibre of the vessels, as affected by inflammatory action, attacking their walls or stealing along the surfaces of contiguous membranes.

Practical men, of the present day, have thus grounds for a natural division of the actions of *traumatics* into, 1°, The disturbances *primarily* produced, MECHANICALLY: *e.g.* division of the tissues, fractures, disarticulations, perforation of a viscus, division of a canal. 2°, The disturbances produced REACTIONALLY, conformably to the laws of life, and referable to two groupes—local and general: the local are tumefaction, redness, heat, &c.; the second are fevers, sympathic congestions, and their sequelæ. The disturbances of the first groupe cause death, only by physically *suspending the functions of organs,* whose actions are *essential to the maintenance of individual life;* whereas, systemic riots, of the second or constitutional groupe, induce death by inducing true *maladies*—properly so called. Wounds, which prove immediately fatal, *kill,* without *diseasing* their victims. The second order of the sub-division of traumatics, precipitate death, through the intervention of those *vital* ACTS—or PATHOLOGICAL *functions,* technically termed DISEASES. In fine:—

The study of the Philosophy of what is conventionally, and by courtesy termed Surgery, like that of Medicine, consists—need the student in the third year of his curriculum, be told—in the investigation of the inductions, educed from the observation of facts, and the collection of instances, of the Laws of *Vital* Animal Organic REACTION.

SECTION XI.

OF "SYMPTOMS," OR FALLINGS-WITH, IN GENERAL;

AND OF

COINCIDENCE-DISCOURSE,

OR,

"SYMPTOMATOLOGY,"

TECHNICALLY SO CALLED.

Une maladie est bien souvent une espèce d'énigme; les donneés n'en sont pas claires pour tout le monde; le plus exercé, celui qui a le plus de sagacité, en découvre le plus facilement les rapports cachés, et applique le mot avec plus de promptitude et de sureté.—*M. Leon Rostan.*

In captain Head's amusing and vivid description of his journey across the Pampas of South America occurs an anecdote quite in point. His guide one day suddenly stopped him, and pointing high into the air, cried out, "A lion!" Surprised at such an exclamation, accompanied with such an act, he turned up his eyes, and with difficulty perceived, at an immeasurable height, a flight of condors soaring in circles in a particular spot. Beneath that spot, far out of sight of himself or guide, lay the carcass of a horse, and over that carcass stood (as the guide well knew) the lion, whom the condors were eyeing with envy from their airy height. The ***Sign**al* of the birds was to him what the sight of the lion alone could have been to the traveller—a full assurance of its existence.——***Sir J. F. W. Herschel.***

Le SYMPTOME existe pour tout le monde—le SIGNE pour le seul médecin.—*M. Leon Rostan.*

The grand general problem, whose satisfactory solution, commonly, is the most trying of any to the medical practitioner, is—the just diagnosis of the malady, whose phases he proposes, when called upon, to regulate, to the best advantage of the sufferer who entrusts the well-being of his economy to his care.

For the present, it will be sufficient to say, that, as a science, DIAGONOSIS consists in, or, according to others, depends upon, a knowledge of the *characters* which serve *to difference,* or *to distinguish,* diseases: and, that as an art, it consists in the *application* of such knowledge at the bedside of the sick, in *individualizing* a given disease, by appreciating, as accurately as may be, the existing state of the patient's organizationism; to the end that, first, a sound prognosis, and, secondly, a *rational* mode of treatment, may be formed, and instituted. There must be data, then, for a sound prognosis, and a sound treatment: and it becomes a question for the student's consideration, *how*, or by what means, the data required, are furnished; or finally—What are the *requisites*, for sound diagnosis? According to Rostan, and others, they are chiefly three, *in addition* to an acquaintance with the laws of the system in states of health.[1]

1°, Knowledge of the changes which occur in the functions and organs during states of pathology: *i.e.* SYMPTOMATOLOGY: 2°, The converting of these changes into what are called *signs*—in other words, the philosophical reduction of each of these, sensally appreciated, changes, so as to interpret *what they mean*, or *sign*ify: i. e. SEMEIOLOGY. 3°, Knowledge of the traits of the different diseases, to which flesh is heir to, and of the characteristics which serve to distinguish any given disease from every other essentially non-identical: *i. e.* SPECIAL DIAGNOSIS, grounded upon special pathology.

The student had better return upon these remarks—each time, attentively noting, while re-reading, their bearings.

Much study is a weariness to the flesh, and, truly, (as Solomon also says) "of the writing of books, there is no end," yet, if the educational suggestion, just offered, is considered worth the trouble of being acted upon, the student will, with each perusal, probably, be more duly alive to the value (in respect to his own immediate advantage) of getting clear elementary ideas, upon such important points, among others, as the following:—points, however, which too generally, it is to be feared, have been overlooked, or disregarded, from mistaken impressions,—either as to their being virtually insignificant in themselves, or, that they have been abused into mere nominal trifles, by the conflicting scholastic refinements of the sciolists of the schools.

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[1] We call all states of the living body *diseased*, in which there are such deviations from its natural condition, as cause suffering or inconvenience, or endanger life.

A slight attention is sufficient to show, that there are many facts, in regard to the operation of external causes on the human body, and the *modes of* DISEASED *action*, assumed by its different organs, which *could not possibly have been inferred from our knowledge of the structure and* HEALTHY *action* of parts; which are made known to us *only by observation* of the *diseased conditions* of the body *themselves;* and can only be properly generalized *by* an *induction* STRICTLY *confined* to this department of knowledge.—*Dr. Alison.*

It is to libel and misrepresent the discernment of the ancients, to ignorantly, and therefore culpably assert, not only that they had no idea of pathological *anatomy*—that diseases were merely "symptoms," and, that they only attended to "symptoms";—but further, that symptoms, to them, were mere abstractions, which they flung together, according to fancy, so as to *make* diseases—upon parchment: or, in other words, that the delineations of pathology by the ancients were, as painters would say, closet *compositions*, not sketches from nature.

The very proof of the injustice of ignorantly, or unintentionally hazarding such criticisms, exists in this fact:—whenever the ancients saw, or thought that they saw, functional disturbance in living bodies, of an *a*normal character, the idea set up in their minds, by such evidence, found expression—in what word? By the compound term, *symptom*, derived from *sun*, συν, signifying *with* or *at the same time*, and *pipto*, πιπτω, *I fall.* Thus, the very etymology of the epithet—literally *a falling together* or *coincidence*, substantiates, beyond cavil, that they formed a just conception of the difference, subsisting *in the nature of things*, between the phenomena, or acts of living bodies, in states of health, and those of the system, in states of disease. And, accordingly, (expressly to avoid ambiguity,) they employed the term Symptom, as expressive of a phenomenon, or *act*, of the organizationism, being—by the evidences of their senses, *connected with* some *un*healthy state of it. Galen unequivocally uses *symptoma* in this sense, when remarking, that *(sicut umbra sequitur corpus)* it is something *projected,* or thrown off by, or which attends, states of pathology, just as a shadow is projected by, or is, as if, an emanation from, a body. Nothing can be clearer than this.

And hence, too, the term Symptom, or *coincidence,* to this hour, is made use of by accurate thinkers and writers, solely in its restricted and proper sense, as designative of an act of a *diseased* state of body, in as marked distinction from the generic term, *phenomenon,* as from *sign.* Thus:—every sensible change, in the statics or dynamics of any organ or function, in living bodies, *connected with a state of* PATHOLOGY, in the language of disease-discourse, is—a *symptom.*

Symptoms must not be confounded, in point of meaning, either with phenomena, or with signs. Every act, or change of the living body, *either* in health or disease, is a *phenomenon,* i. e. manifestation, or *appearance*—which is its literal meaning. We can, with perfect propriety, speak of *phenomena,* but not of *symptoms,* of HEALTH. Where there is no Disease there can be no Symptom. Hence (as remarked by Chomel) the impropriety of authors using such incorrect expressions, as—*precursory* and *consecutive* SYMPTOMS. Every appearance, change or manifestation, which is notable *before* disease exists, or *after* it has ceased, is—a phenomenon, not a symptom.

By "sign," in common acceptation, is meant, whatever leads to the knowledge of any thing; the thing being thereby made known, or its otherwise hidden existence declared. In pathology, *sign* exclusively designates every thing which makes known the otherwise concealed state, past, existing, or future, of a malady. The causes preceding its development—the manner in which it commences and progresses—the influence exercised upon its course by therapeutical agents, furnish signs, as well as symptoms, of a disease. Symptoms merely impress the *senses;* or make a *sensal* IMPRESSION only, upon the observer:

whereas, signs are the effects of a *mental* OPERATION, upon the part of those conversant with the subject-matter of pathology. To ascertain the *sig*nification of any symptom—to determine its diagnostical, prognostical, and therapeutical value, the brain of the medical observer must functionate those series of mental actions, constituting *apprehension* and *judgment*; and those *successive acts* of specially directed judgment, too, in which Reasoning consists. Signs, therefore, are made known, through mental agencies—symptoms, through sensal, only. The whole world may sensally appreciate symptoms; but medical observers alone, can mentally discover signs, in symptoms.

Further: As sign, like phenomenon, is equally applicable to states of health and of disease, and, as there is no symptom which does not afford a sign to the disciplined practitioner, every symptom must be a sign, but every sign is not a symptom.[1]

The science and method of converting symptoms into signs, are here, for the present, not considered. The second epigraph prefixed to this section, well illustrates the relation of a symptom or *coincidence* (the flight of condors *soaring in circles,* in a *particular* spot, over the Pampas of South America) in reality, not with one but two things, thereby *sig*nified; namely: First, that the carcass of an animal (said, with an exaggerated refinement, perhaps, of semeiology, to be that of a *horse)* existed below: and secondly, as further inferred by the particular mode in which the birds of prey were wheeling about, that they were disturbed or dared not to alight, because of the presence of a *lion* standing over the carcass. To captain Head, or to any one, the flight of the condors, would have been a *symptom,* as soon as perceived; but to the *experienced* guide, the *sig*nal of the birds, was, as stated, what the sight of the lion and the carcass, alone, could have been, to the uninformed traveller—a full assurance of the existence of both. Thus, then, it was, by an *intellectual* operation, by converting a symptom into a sign, that the guide was enabled to cry—"a lion!" "a lion!"

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[1] [See *inter alia*—Op. cit. *Chomel*, p. 156; *Dubois* p. 86: and *Rostan* "Diagnostic" p. 121. *Landré-Beauvais* "Des Signes en général" *passim. Herschel's* Discourse on the Study of Natural Philosophy, 2d Edition, pages 84 and 85; Ouvrage posthume de *Dance*, p. 97, &c.]

Symptoms being so numerous, the observance of method in their exposition, is necessary. Authors have treated of, 1°, *commemorative* symptoms—those which relate to circumstances which have preceded, or accompanied, the invasion of a malady. 2°, *Diagnostic,* or *concomitant,*—those which characterize the disease and distinguish it from every other. 3°, *Prognostic,*—those which announce the favorable or unfavorable issue of disease. Other authors, have named (a) *precursary,* and (b) *consecutive* symptoms.

Symptoms are also classified, according as they are regarded—as *primary,* i.e. essentially produced by the affection indicated by them; or as *secondary.* Among the last mentioned, such as are referable, or referred, to the sympathy subsisting between organs in a state of integrity, and those primarily lesioned, are styled *sympathical. Epiphenomena, (epi, επι, upon,)* designates various occurrences, dependent and attendant upon severe symptoms, of which they are, as it were, the train.

Symptoms have been designated *dynamical* or functional, and *statical* or material. This division is too arbitrary to be followed in a didactic treatise, such as this. Besides, sound critics have objected to it, on the ground of the absurdity involved, not by the *sub*division of DYNAMICAL symptoms, into *local* and *general,* but of the STATICAL, into statical *anatomical,* and statical *physical!* Just as if an anatomical, was not necessarily at the same time a physical condition! It is nursery work to classify symptoms, as some have done, into those which tell upon the senses of the physician, and into those which are only perceptible to, or *felt* by, the patient. As to the physical symptoms of Boërhaave and of Boyle, and the statical anatomical, &c. Dubois regards them as purely organic alterations, and, with scientific propriety, treats of them as such in his section on pathological *anatomy*.

The most intrinsicly valuable distribution of symptoms, is, the order of their general succession—the chronological order. For elementary purposes, symptoms must first be treated of, separately. It would, moreover, be clearly to reverse the natural order of things, to proceed to the consideration of the *exacerbation* or *remission* of symptoms, *relapse* and *recurrence*, &c. &c. before studying the symptoms themselves, which are the elements—the alphabet of all such pathological exercises.

Various classifications, in short, have been proposed—many of them pretty much upon the principle of the reformer, who conceived he had made a *new* alphabet, by merely shifting the customary arrangement, of the recognized elementary vowels and consonants, already in use. Without presuming, therefore, that the arrangement here adopted, is "immeasurably superior to any hitherto offered," it will serve every rational purpose to state, that it is conceived, that students (for educational purposes) will have much of the embarrassment attendant upon their first attempts at interrogating the sick, at the bedside, obviated, by successively acquainting themselves with the chief sensally recognized evidences of disturbance, referable to the function of each apparatus, or of the actions of the organs, in detail.

To consummate this desideratum, the remainder of this section is devoted to an elementary outline, not of all—let the student carefully guard against attempting too much at once—but of the leading symptoms, referable to the organs whose statics and dynamics concur to constitute the functions—1°, of Relation, 2°, of Nutrition, and 3°, of Reproduction. This order combines the advantages of being, while equally adapted to the actual examination of the sick, also the only one, which is applicable to the description of each disease, in particular, and to the clinical exposition of symptoms, in general.

What are the sources of the practitioner's first conception of a patient's case?—The phenomena presented by the physiognomy, attitude, movements, voice, and so forth. Hence, as a standing rule, the student should mark his first impression of a case, upon being introduced to the sufferer; and should reflect upon the chain of mental operations, (whether founded upon reason, or precipitate bias,) which has induced his professional opinion. In the absence of these first impressions, which should be carefully noted, with a view to serve as CHRONOLOGICAL *data of comparison,* so to term them—the eye-sight is imperceptibly accustomed to such changes in the physiognomy, voice, and outer man, which are evanescent and *un*usual.

Upon the whole, then, it seems expedient to first treat of the symptoms referable to the organs of the life of relation, and to, successively, pass to the consideration of others, say in this order:—

I. *Changes which Disease induces, in the functions of the Life of Relation.*

II. *Changes which Disease induces, in the functions of the Life of Nutrition.*

III. *Changes which Disease induces, in the Conserving functions,* properly so called. i. e. *those of Reproduction.*

I.

1 Exterior Habitude.
2 Locomotion.
3 Voice and Speech.
4 Sensations.
5 Functions of *Emotion.*
6 Functions of *Intellect.*
7 Sleeping and Waking.

II.

8 Digestion.
9 Respiration.
10 Circulation.
11 Animal Heat,
12 Secretions.

III.

13 Functions of Generation in the *Male.*
14 Functions of Generation in the *Female.*

The changes which acts of disease induce in the functions, will be more duly estimated, by those students, who acquaint themselves, first of all, with the *laws of the functions in* HEALTH. Without a determinate standard of comparison, *morbid* phenomena, can, at best, be but approximately appreciated.

I. CHANGES WHICH THE STATE OF DISEASE OCCASIONS IN THE FUNCTIONS OF THE LIFE OF RELATION.

External Habitude. The attitude, bulk, condition of the muscular system, color of the skin, eruptions, tumors, solutions of continuity, &c., are included under this term.

The first thing that strikes the practioner's attention, when introduced at the sick bed, is the bodily posture of the sufferer. The *ducubitus,* or mode in which the body is disposed in bed, may be *dorsal* or *supine* e. g. in peritonitis: this position generally signifies, states of prostration. It may be *lateral,* as in pleuritic effusion, and in pain of the right or left lung in pneumonia. The decubitus, in cases of effusion, is upon the diseased side, but in cases of mere pain, it is upon the sound side. When a patient, except from the force of habit, can only lie upon his back, it is an unfavorable sign. The decubitus may be, *on the belly,* as in cases of metallic colic. In other diseases, as of the heart, (aneurysm,) some patients can only exist by assuming a *sitting* position; or returning to, and quitting, an odd posture—as in aneurysm pressing upon the trachea. When the sitting posture is persisted in, and particularly when the arms are stretched out, or are allowed to flag, or dangle over both sides of the bed, with the head thrown back—disease of the circulatory and respiratory systems, and that, too, of a dangerous character, is indicated. Bodily *restlessness* ("fidgets") almost always precedes attacks of eruptive fevers.

The *bulk* of the body generally diminishes, during chronic diseases. It is augmented by an accumulation of fat, (obesity,) or of liquid. When general, *fluid* infiltration is designated *ana*sarca *(in* or *among* the *flesh),* or *lęucophlegmasia* (*white* inflammation); and if partial, *œdema (puffy* swelling). Infiltration of *air* takes the name of *emphysema* (something *blown into,* or internally).

There is less or more *intumescence* of the body in all of the eruptive fevers. In small-pox it may take place to a frightful and alarming extent. Sudden *wasting* indicates rapid and profound sinking of the vital powers. Progressive wasting and marasmus attend the course of many diseases, as specified in works on special pathology.

The *muscular* system becomes relaxed, in cases of debility, and soft, in paralytic affections. It is firm and resisting, in acute phlegmasies.[1]

The *color* of the skin presents numerous pathological varieties. It is *pale*, as in the "cold," or shivering stage of Ague; semi-transparent, in green sickness, and in strumous constitutions; dirty and earthy looking, in phthisis and adynamic fevers; livid, in scurvy and heart diseases. The skin is red and fiery looking, and dry to the touch, immediately before the specific efflorescence of the exanthemata. When pale, or greenish yellow, like the color of the surfaces of a recently cut potatoe, organic mischief (cancer,) and advanced visceral degenerescences—are indicated. In *cyanosis* it is blue: hence the title of the disease, or congenital malformation, on which the marked symptom depends.

The skin is also the seat of eruptions, spots, vibices, phlyctenæ, tumors, erosions, wounds, &c. Every part of the body should be examined. It is the province of special pathology, to furnish an article in detail, in respect of its topography. The student's attention should be particularly directed to the—

Countenance. Despite of their diversity, and evanescence, physiognomic expressions may be reduced to two classes, 1°, According as they indicate particular states of the intellect—*mental* diseases: or, 2°, According as they are excited, merely by physical pain, wherever felt, and of whatever nature and kind. Idiotism is ever expressed by the visage. The countenance supplies keen observers with data, by which to judge of the intellectual and general character of individuals, by tracing, and converting, into signs, the habitual shades of physiognomic expression, from the "air" whether of innocency or of idiotcy, for instance, down to that of the most impervious stupidity.

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[1] [PHLEGMASY—This term expresses more than a mere state of inflammation. Inflammation may be strictly *local:* but when there is pronounced Reaction of the general nervous and circulatory centres—Systemic Reaction, *i. e.* FEVER, the complicated pathology is indicated by the generic epithet *phlegmasy.* Pneumonia is more than an *inflammation* of the lung—there is also *constitutional* disturbance: it is one of the *phlegmasies.* This distinction, of manifest importance for purposes of precision, should be more generally attended to, than it has been.]

All the emotions are less or more appreciably telegraphed by the features. Some physicians and psychical physiognomists, infallibly interpret the most transient indications of the workings of the inner *man*, from the slightest simper of the coquette, the pseudo-decorous look of the prude, the self-complacent smile of monied corpulence, the self-sufficient "air" of the jack in office, the apathy and mysticism of the stoic and the german visionary—upward through every note in the otherwise latent and inappreciated gamut of feeling, to the glare of the demon, or the frantic gaze of the furious maniac. Sensations, as well as mental emotions, may often be correctly estimated by the gestures, the animation of the countenance, and, above all, by the play of the *eye*. Sensal and mental acts, pleasurable and painful, are notably expressed by the eye of, even the lower animals: and with what delicacy—with what speaking energy, are not the passions mirrored forth, by the eye of the human male and female!

Clinical study, in respect to physiognomy, is still very imperfect. The suffering, and what is important—the *nature* of the suffering of special organs, is often signified by the physiognomy. Disease, believed to be *inflammatory* or *hemorrhagic*, of the membranes or substance of parts of the brain, is indicated by that curious paralytic convulsion of the muscles of the face, resembling the appearance presented by the features of a person liberating tobacco smoke from the mouth; and hence the special title, *(fumer la pipe,)* applied by the French, to characterize the form of paralysis, so determined. A bluish tinge of countenance,—particularly of the lips, conjoined with a particular expression of profound suffering, attends most diseases of the heart. A serene, and as if hallowed, pensiveness, shrouds the features of many of the youthful victims to consumption. The physiognomy in question, if once noted, is never forgotten, nor seen without well-founded apprehension being suggested to the medical observer. It is a chief characteristic of the often latent, stealthy workings of that fell disease, which germinates, or which is so readily developed as an entozoary, in organizations thus delineated in the exquisite and graphic lines quoted by Dr. Armstrong—

> ———— Her brow was fair, but very pale,
> And looked like stainless marble: a touch methought would soil
> Its whiteness. On her temple, one blue vein
> Ran like a tendril. One, through her shadowy hand,
> Branched like the fibre of a leaf, away.

In certain stages of hypertrophy of the heart, the cheeks become turgid and elevated in a grinning manner; and the eyes project, as if, from their sockets. In colic, peritonitis, and bronchitis, and in the majority of the diseases of infants and children, the physiognomy presents striking traits. The vultus *hectica*, attending irritational fever, and the *hippocratic* face (so termed, from being so admirably described by Hippocrates) characterizing the features of the dying, require mention, and should severally be attended to by the clinist; as also, the various movements of the nostrils, lips, eyelids, and eyebrows. Such phenomena are all, less or more, important, as affording signs to the medical practitioner.

The exploration of the exterior topography of the chest, frequently serves to discover symptoms, which lead the way to sound diognosis: *e. g.* in chronic pleurisy, aneurysm of the aorta, water in the chest, spinal affections.

The abdomen, as regards *volume*, is variable, as in *ascites* and tympanitis . . . . Lastly, in some cases, it may be absolutely necessary to explore the organs of generation. Many contributions to symptomatology, as Chomel truly remarks, are thence derived.

Symptoms furnished by the organs of Locomotion. The bones may be so deformed, as to give rise to appearances, which, if not traced to their physical origin, may deceive the practitioner. In dislocations and fractures, preternatural mobility and *crepitation,* are observed. Muscular action may be *exalted,* as in mania; *diminished* or *abolished,* as in paralysis (unloosing); *perverted,* as in *tremor*—which consists in slight, feeble, and involuntary agitations; *e. g.* among the epiphenomena of mercurial disease, and old age.

Other symptoms referable to states of the nervous as well as of the muscular system, *e. g. cramp, convulsions, paralysis*—will be treated of, under the sub-division of symptoms referable to the apparatus of sensation. Alterations of *voice* and *speech,* will be treated of, under the sketch of the symptomatology of the respiratory apparatus. By the observance of this arrangement, much wordy repetition will be advantageously avoided.

Symptoms referable to States of the Sensibility—External Sensations—Morale, Intellect, &c. After having attentively examined every thing deemed of importance, relative to the exterior habitude, or person of the sick, the young clinist must prepare himself for addressing proper questions to the patient. With this view, he should proceed to ascertain the state of the sensorial functions—intellectual and moral acts, &c.

The faculty of sensation, variously modified, is possessed by the majority of the tissues of the body. Symptoms referable to it, are occasionally manifested in all of them, with the exception of the epidermis, and its productions.

It is by virtue of sensation, that various impressions are transmitted to the *sensorium commune. Internal* sensations apprize us of certain phenomena which pass *within* our own bodies; and *sensations,* ordinarily and properly so called, make known to us, certain conditions, or qualities, in the objects of the external world, with which we are brought into relation. Sensation in general, and internal and external sensations, in states of disease, present numerous changes.

The mental sensation, *pain,* is produced by various causes. No organ of the body is exempt from it. It varies in *nature, intensity, type,* and *seat.*

Pain may be produced by—1°, Notable alterations in the tissues of diseased parts, as in ulceration, inflammation, wounds, organic affections generally: 2°, Too intense or too prolonged exercise of a part: 3°, Inexplicable modifications in the play of the organs, which become primarily or sympathicly pained . . . . The effects of pain are more evident. *(a)* Pain disturbs the actions of the organ which it occupies. It embarasses, or prevents, *muscular* motion; in the mouth, mastication; in the stomach, chymification. *(b)* In some cases it provokes an afflux of fluid, either to the surface, or, in the tissue of the organs. *(c)* It produces sympathic disturbance in remote parts; for example, vomiting, in head affections. Convulsions attend different forms of pain. *(d)* When excessive, all the functions are thrown into disorder.

Pain occasioning feelings of distension, is named *tensive:* it occurs in phlegmonous inflammations. *Heavy* pain, is that attended by a feeling of weight, as in collections of fluids within natural, or accidental, cavities. *Pulsating* pain, is characterized by throbbings or pulsations, not synchronous with the strokes of the heart: it is felt in circumscribed inflammatory actions, running on to suppuration. Pain, shooting suddenly along the trajects of the nerves, as in cancerous and neuralgic affections, is styled *lancinating. Boring* and *screwing* pain, must be recognised: patients martyred by rheumatism, describe their diseased local sensations, as if caused by the boring of a gimlet, or the tightening of a screw,—*e. g.* in gout. *Burning* pain is experienced in carbuncle, and, during gangrenous erysipelas. The cutaneous tissue is the seat of many anomalous and distressing sensations—as intolerable *itching;* and that produced, as if by a mob of small insects, or a colony of busy pismires, simultaneously moving up and down the affected parts, is appropriately termed *formication.* During the stages of disease, the character of pain may vary. In phlegmonous inflammations, it is tense in the first, throbbing in the second, and gravitative in the suppurative, stage.

The *intensity* of pain must be estimated by the report of the sufferer, and by the disturbance which it occasions in the physiognomy, and the functions generally. Its degree depends upon its cause—upon the sensibility of the individual generally, and upon that of the affected organ, in particular. One while, heat, and at another time, cold, exasperates it. External pressure moderates some kinds of pain, and aggravates others. The expression of pain depends, in great measure, upon the degree of the patient's impatience, and pusillanimity. The *type* of pain is continued, with, or without, exacerbation; or it is intermittent with, or without, regularity. Pains may be *fixed* or *erratic; partial* or *general.* They receive different names according to the organ, or part of the economy, in which they are located:—*e. g.*—*cephal*algia, pain of *head,* generally; *hemicrania* (i. e. *half* of the *cranium),* or *megrim* (a corruption of hemicrania), when it is confined to one side of the *head; ot*algia, pain of the *ear; odont*algia, *tooth*-ache; *cardi*algia, pain of the *œsophageal orifice* of the stomach; *nephr*algia, *rachi*algia, *hepar*algia, pains of the "reins," "small of the back," and liver.

There are other sensations closely allied to, if not actually, *pains.* For instance, *restlessness,* feelings of unhappiness and discomfort, *anxiety.* This last amounts to *anguish,* when there is a sensation of general and indescribable bodily uneasiness, which seems to be centred in the pit of the stomach, and obliges sufferers to seek temporary relief by tossing and tumbling in bed, getting up and wandering about the room, and almost incessantly changing their position. Patients affected with organic disease, and great constitutional disturbance, from excesses, occasionally complain of odd sensations, described as if owing to some organ, such as the heart, liver, or kidneys, not being in their proper places. Something "*not right* with their inside," is the expression of many so morbidly sensed. Further: sensations of cold air, or drops of water, coursing up the back, precede some convulsion fits, *e.g.* the *aura epileptica* in the falling sickness. A ball of wind, or a feeling of spasm, travelling along the bowels, or from the stomach up to the larynx, and there causing a sensation of impending suffocation—*globus* hystericus, as felt in states of morbid irritability of the stomach and bowels, —in dyspeptic hypochondriasis, and in states of uterine irritation.

The functions of the organs of the senses may be *excited*, *perverted*, or *diminished*.

Sight is—exalted in *meningitic* ophthalmia; less or more in abeyance, or abolished, in amaurosis and cataract; perverted in *diplopia*, or double vision. The senses of seeing, hearing, and tasting, are modifications, merely, of the sense of touch; and *touch* is only a modification of general sensation. All, in their several ways, are liable to be perverted, excited, or diminished, by the special agency of appropriate causes. So, too, of the internal sensations, moral and intellectual.

When a *mental*, or *moral*, lesion, is suspected, the organs presumed to be indisposed should be functionated by experimentally applying their appropriate stimuluses. Mania, intellectual or moral, is an *absolute*, idiotcy is a *relative*, state. The one is characterized by *absolute* excess *of power*, *with* defect *of* BALANCE, in one or more of the organs, of the BRAIN-PROPER *in action*. The other is, *relative* want *of* POWER, *without there* necessarily *being* want *of balance*, in the intellectual and moral actions and functions.[1]

Morale.—Disease almost always induces sadness, impatience, ennui, inquietude. Some patients are quite indifferent as to their fate. In severe fevers, moral sensibility is often wholly abolished. There may be the greatest perversion of character and feeling: individuals who are mild and contented, when in health, are generally peevish and crabbed when overtaken by sickness: the most overbearing and obstinate become submissive and docile; the firm, irresolute—the bold, pusillanimous—the timid, resigned, and passively courageous. Hence it is a common remark, that those who in health are the most amiable, *make the worst invalids.* Many females, naturally of a gentle and winning disposition, become perfect vixens when indisposed. Deranged *morale* is very marked in some cases. Patients occasionally take the oddest aversions to particular attendants, visitors, friends, or to their father or mother: this is a very common symptom during the course of severe fevers, and in mania.

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[1] [Just as every medical practitioner must admit, that a man may be *intellectually* maniacal, or, "as mad as a march hare," generally, without his being *morally* insane—as by the constitution of his being, he may be *morally*, and not intellectually, any more than, *ipso facto*, also, necessarily, *physically* insane;—so individuals may be *morally* as well as intellectually *idiot*ical, per se.

Power, is relative; *balance*, is positive or absolute. No brain-endowed creature is absolutely idiotical. Idiotcy, as stated in the text, is a relative term. There are ascending grades of moral and intellectual capacity (power), from the conventionally considered meanest Brute, up to the DEITY.]

Intellect.—Attention, memory, imagination, and judgment, present numerous anomalous changes during indisposition. There may be total or partial loss of memory: names of people, and particular words, escape every effort at recollection. Judgment and imagination may be normal, and memory only partially deranged. All the functions of the mind may be simultaneously disturbed.

The intellect may be wonderfully brightened by disease. Friends are often amazed at the surprising, because unusual, accuracy of memory evinced by the sick. Some retrace things long forgotten, or which, it was thought, had escaped their attention. Others, who never could otherwise than express themselves vaguely, tautologically, and in a style of jumbling hesitation, deliver their ideas, in a correct form of expression, at a first effort, with logical precision; and rattle on, with a tide of language, and a brilliancy of imagination, immeasurably superior to what characterized *their* "healthy" brains, when in action. It is far from infrequent to meet instances of extraordinary intellectual development and moral refinement, toward the decline of acute diseases when advancing to a fatal termination. And just as patients, who never, previously, could sing either in time or in tune, have warbled their own *requiems,* so to speak, with touching melody; so others, on their death bed, have entertained noble sentiments which, it was thought, they were incapable of feeling, and have delivered them in a strain of fluent and eloquent declamation.

The mental functions, most frequently, are enfeebled by disease. In typhoid fevers, mental debility is particularly apparent—some of the sufferers lie for days and weeks, without a single perceptible change, of an intellectual character, being evidenced in their meaningless features; their very eyes remaining fixed, without "speculation," as if no *mind* was functionated by the brain, behind them.

Perversion of the moral and intellectual faculties constitutes *delirium (de,* out of, *lira,* track, or customary *pathway),* in the generic acceptation of the term. There are many kinds of delirium. Delirium may turn upon a misconception of the true relation of *external* things, or, it may be *internal,* and depend upon disorder, exclusively, of the cerebral functions—in other words, not provoked by extraneous stimuluses. Senseless muttering, clutching at imaginary objects, conversing with absent persons, as if they were bodily present, are among the traits of delirium.

Delirium may hinge upon one subject, or a single idea, and may be permanent or transient, or recur at intervals. Two varieties are principally treated of—*mild* and *furious* delirium. The former, also entitled, *sub*-delirium, may be indicated, by gestures, actions, or language, merely. The patient moves his hands, and flings his arms about,—endeavoring to leave his bed; or he throws off the bedclothes, apparently without any sensible motive. He may be obstinately silent, (delirious *taciturnity*), or keep up an incessant chatter of nonsense, (delirious *vani*loquism), or mutter unintelligibly and feebly through his teeth, (*low muttering* delirium).

In furious delirium, the patient sings, shouts, and blusters—entertains the wildest, or the most obscene notions—raves against absent or particular persons—makes furious efforts to spring from bed—throws things about him, and spits at the attendants.

The grades vary. Delirium may be so mild, that the patients, themselves, are aware of their condition, and endeavor to rectify their erroneous judgment. There may be the greatest desire, without the ability, to overcome delirious impressions.

In respect of *duration,* delirium may cease partially, or altogether, in a few minutes; or, it may endure for days, weeks, months, and even for years. . . . On recovering, sufferers may retain not the smallest recollection of their state, nor what occurred to them, while *"beside* themselves." Sometimes, however, a confused, or a most exact recollection of what has been experienced during fits of delirium, may exist, on recovery.

Sleep and wakefulness.—The duration of *healthful* sleep depends upon habit: it is less or more regular as regards each individual; it is tranquil, and refreshes the mind, and dissipates the effects of previous bodily fatigue. In disease, it may be variously prolonged, diminished, suspended, or disturbed; and recruits neither the mental nor the bodily powers.

Sleep is generally diminished in acute diseases. When totally absent, *pervigilium* is constituted. *Night-mare* consists in a sense of impending suffocation, with appalling dreams. The patient generally screams, or desires to do so, without the power. Others start up in bed, in a state of indescribable fright, and drenched with cold, clammy, perspiration. The sleep of the greater number of victims to *secondary* dyspepsia, hypochondriasis, and heart affections, is disturbed by night-mare taking the form of spectral pursuers—falling from precipices—being involved in ruins—in a house on fire, without the power to call out for assistance, or to effect escape, &c. &c.

Many of the ancients entertained a notion, that during sleep, when few or scarcely any *external* SENSATIONS disturbed the *internal*, that the disorder of an affected organ would be more strongly felt, and would set up, in the *sensorium commune*, a disposition to some *particular kind of* DREAM. They acted upón this belief; and used, frequently, to watch the behavior of their patients while dreaming, in the hope of thereby obtaining hints, or clues, towards arriving at correct diagnosis, in otherwise obscure cases. Galen, at considerable length, describes the case of a man, who, after dreaming, for several successive nights, that his legs were pillars of stone, ultimately became paralytic! Some have gone so far as to pretend, that seeing red and colored objects when dreaming, indicates impending attacks of acute inflammation; and that tendency to dropsy is frequently heralded in by dreaming of cascades, picturesque waterfalls, and of being wafted, swan-like, upon sheets of water, as romantic as the prurient conceptions of those who have credited such reports.

The Egyptians and Greeks, caused their sick to sleep in temples, with a view to induce the Gods to make known to them, in a dream, the remedies adapted for their several cases. Mahomet had most frequently to go to the hill in such cases. But, were the disciples among the ancients, who entertained such a superstitious belief, one half so childishly credulous as many of the modern german and french disciples of Mesmer, who believe in the knowledge of diseases, and their appropriate remedies being revealed, in consequence of the ecstasying magical Mesmeric somnolence, with which many of the branches of the FUDGE FAMILY are hallucinated?

Somnolence is the epithet used to express, neither a state of sleep, nor a state of wakefulness, but, a hybrid condition, between both. When sleep is deep and heavy, and the patient can be roused with difficulty, *sopor* is the appropriate epithet; and, if still more intense, and the sleeper not awakable, except for an instant followed by relapse—*lethargy*. *Carus* technically designates, utter insensibility during sleep: the lethargic *are*, the caric, are not at all, wakable. These symptoms attend several diseases of the brain and encephalic membranes. The enumeration may be closed, by directing, for an instant, the student's attention to *leipothumia,* which consists, in the all but complete suspension of the functions, with pallor of the visage, and relaxation of the members—respiration and circulation, however, continuing. This symptom, when not intense, is termed (animi deliquium) *swooning. Syncope* presents similar phenomena, and, in addition, all but total suspension of circulation and respiration. In *vertigo,* surrounding objects appear to be whirling round. Palpitations of the heart, and a tendency to fall to the ground, almost always accompany attacks of vertigo. The majority of acute diseases are ushered in by vertigo, along with other symptoms. The sensation of *swimming in the head,* is experienced during the progress of maladies which prostrate nervous and muscular energy; and particularly when patients of plethoric, debauched, or exhausted constitutions, stoop suddenly, or abruptly resume the erect posture.

The powers of motion, as well as of sense, present numerous morbid phenomena or symptoms. In the majority of diseases muscular power is diminished. The degree may vary, from the simplest sensation of *lassitude* up to complete *prostration.* Motion may be wholly or partially abolished, constituting *paralysis.* Paralysis, almost invariably, is only partial. When universal, immediate death is produced: nevertheless, it is momentary, as in asphyxy and syncope. When paralysis occupies one lateral half of the body, it is named *hemiplegia* (literally *half*-struck); if the lower half of the body—*para*plegia; if the arm of one side, and the leg of the other—*cross paralysis,* which is an extremely rare form.

Perversions of muscular contractility are very various. Muscular bands, or individual fibres, may be feebly and involuntary agitated—*tremor.* The most ordinary perverted movements *independent of the will,* are Convulsions, which may be, 1°, *clonic,* as in hysteria, when contraction alternates with relaxation; or, 2°, *tonic,* when contraction persists without recurring relaxation. When, as in *tetanus*, the muscles of the anterior part of the body are *tonicly* convulsed, the disease is termed *emprosthotonos;* if, on the contrary, the muscles of the posterior region of the body are affected, *opisthotonos*. Lastly, *pleurosthotonos* designates cases, in which the contraction is limited to *one side*.

Catalepsy and *St. Vitus'* dance, furnish instances of other kinds of perverted muscular contractions. The former malady consists in an aptitude for the muscles to preserve the degree of contraction with which they are impressed, how bizarre and inconvenient soever the consequent bodily posture may be. Involuntary twitchings, grimaces, and attitudes associated in the most strange and ludicrous manner with voluntary movements, constitute *chorea*.

Clutching, in general, is a most unfavorable symptom. It is characterized by successive and keen graspings of the hand, the patient continually trying to clutch some imaginary or real existing body, before or near him. *Subsultus tendinum*, or *starting* of the tendons, ever indicates danger. *Cramp*—a painful contraction, of longer or shorter duration, of one or more muscles, may be scarcely either dangerous or alarming, as in hysteria; or it may be a most serious symptom, as in cholera morbus.

II. Changes which the state of Diseases induces in the functions of the Life of Nutrition.

The symptoms to be cursorily examined under this title, are phenomenaed forth by maladies of the alimentary canal, or by affections of their dependences.

Exploration of the Mouth is generally very easy. Important symptoms are furnished by noting the condition of its various parts. The gums, the teeth, and the tongue should be carefully examined. Swelling of the gums may indicate a poisonous degree of the action of mercurials. In the progress of scurvy, the gums become swelled, soft, livid and spongy, and bleed spontaneously, or upon the slightest pressure. In passive dropsy, the gums and lips are often simultaneously discolored.

The *teeth* "chatter" during the cold fit of ague: *grinding* of them, as in children, particularly while asleep, attends cases of invermination. In the course of some fevers—those depending upon, or connected with, affections of the mucous membranes, patients occasionally complain of their teeth feeling, as if, *on edge*.

Tongue. The color, bulk, movements, &c. of the *tongue* cannot be too minutely examined by the student.

Redness of the tongue—particularly of its tip, by several, is considered as a certain sign of gastritis. In many cases of acute inflammation of the stomach, the tongue is pale. In the febrile reactions, consequent upon traumatic lesions, it becomes redder than usual. The tongue may appear surrounded by a vermilion border, owing to the excretions thrown out upon its surface, leaving the edges uncovered. In malignant fevers, the tongue and teeth become smeared with dark dry *sordes*.

As to *bulk*, the tongue may be so enormously swelled in *glossitis*, that the mouth cannot contain it. One side, only, of the tongue, it is said, may be swelled. In typhus, the bulk of the tongue frequently becomes less. As observed by Piorry, the *motions* of the tongue may be impeded in consequence of the dryness of the organ, or from constitutional debility. The movements are anormal in affections of the brain. In hemiplegia, the tongue may be awry: during severe fevers, some forms of dyspepsy, and in nervous disorders generally, it is tremulous.

The tongue may be *moist* or *dry*, *smooth* or bristled, ("*furred*")—the papillæ being erect. Sometimes it feels to the touch as hard as wood: at other times, it is deeply furrowed, indented, or fissured. In addition to pale and red, the color of the tongue and its *coatings* may be *livid, brown, white, yellow, sooty, piebald.* The coating should be considered in respect of its extent, viscidity, dryness; and also, whether it is adherent, or easily scraped off. Lastly, the tongue is subject to eruptions;—*e. g.* small red painful pimples—to flat, greyish or red vegetations, as in secondary syphilis; and to whitish, superficial pustules, generally accompanied with a sensation of disagreeable heat, and less or more appreciable gastric disturbance—*aphthæ.*

The objects in the back part of the mouth should be carefully explored. With this view, the tongue should be depressed with a spatula, or the shank of a spoon. In angina, and in membranous and erysipelatous inflammations, the palate, uvula, and tonsils, may be coated with a greyish, sloughy looking, covering. The breath in such cases is generally fetid.

Deglutition, when difficult, constitutes *dysphagia*—a symptom present in all inflammatory acts and processes of degeneration, going on in the membranes of the organs, concerned in the function of swallowing. Difficulty of swallowing solids, or fluids, may be wholly of a nervous nature. When a horror of liquids coexists with dysphagy, *hydrophobia* is said to exist. Utter inability to swallow is one of the gravest signs. Liquids when poured within the mouth of patients, sometimes pass direct to the stomach, accompanied by a strange noise, somewhat similar to that which attends the transit of fluids along an inert tube: this is one of the suite of moribund signs.

Stomach. The degree of its sensibility to pressure should be ascertained by gently *palping* upon the epigastre, and by pressing downward, upward, and backward, upon the organ—the palmar aspect of the hand being kept steadily applied over a considerable portion of its parietes. There is a right, and there is a most fallacious mode of palping the stomach and bowels. Under a Broussaiist's mode of examination, most patients wince; and, *therefore,* according to the *Val du Grâce* CODE, they may be brought in guilty of gastric disturbance, and sentenced, accordingly, as fit objects for strict confinement, to water and low diet. A similar caution applies against the hasty inferences drawn by some stomach monographists, from the shying and complainings of uneasiness of patients, upon the fingers of their medical attendants being pronged under the floating ribs—if in search of liver disease, or over the pit of the stomach, to detect gastritis. Piorric-percussion of the stomach, educes tympanitic, humoric, or dull sounds, according as the organ contains gas, or liquid or solid aliment. But, data furnished by the mere physical exploration of organs, are far from trustworthy; and are practically insignificant unless taken in connexion with those supplied by a careful appreciation of functional disturbances.

The function of digestion is impaired in almost all diseases. The appetite may be enfeebled, or quite gone—*anorexia.* There may be *nausea,* with desire to vomit; *retching,* or unavailing efforts to free the stomach from its sense of discomfort; *regurgitation,* or the act by which certain substances are sent up from the stomach to the mouth, unattended by any such efforts as retching or vomiting. The appetite may be extraordinarily perverted —*pica,* dirt eating; or increased—*boulimia.* It is urgent, and scarcely to be appeased, with a sense of sinking at the pit of the stomach, in cases of pregnancy. In *canine* hunger, the patient, if allowed, eats voraciously, and persists till the gorged stomach heaves up its surfeited load. In "the *wolf*" the aliment is promply devoured, and almost instantly thereafter passed off from the anus. *Diminished* appetite constitutes *dys*orexia, and, as was said, its abcyanec—*an*orexia. The appetite is often capricious and anomalous during pregnancy and green sickness—*malacia,* in which there is an exclusive longing for some *usual* article of diet: hence its difference from *pica.*

Vomiting, or the dislodgment of alimentary matters from the stomach, is a functional disturbance which should be thoroughly investigated by the clinist. Vomitings vary in frequency and nature; and the matter ejected should be considered according to its color, odor, consistence, quantity, and chemical attributes.

Considered in itself, the act of vomiting may be easy or painful, rare or frequent, moderate or violent, transient or obstinate. It may come on immediately after ingestion, or not for hours afterward. Lastly, it may be followed, or not, by unequivocal temporary relief. Vomiting is a remarkably easy act during infancy, and is much more readily induced in females, than in males. When vomiting attends states of inflammation, or of irritation of the alimentary apparatus, it is said to be *symptomatic.* When it is set up by disturbance of the brain, uterus, kidney, ureter, urethra, or by a blow upon the testicle, it is *sympathic.*

Repeated violent vomitings, whether of fluids, or of whitish mucus mixed with blood or bile, and which are unattended with relief—accompanied with fever—sometimes with a horror of fluids, and always with burning and atrocious epigastric pains—indicate the most *acute* gastritis. *Chronic* inflammation of the stomach is usually attended by such symptoms as these: a figure expressive of habitual low spirits and suffering; slow and labored digestion, accompanied by a formation, and probably also by a secretion, of flatus; with occasional vomitings followed by relief. *Stomachic catarrh* is characterized by mucus vomitings; and what is not a little strange, is, that alimentary matters are seldom, if ever, simultaneously rejected in such cases, even when the vomitings in question occur during, or after, a repast.

It frequently happens, that food less or more chymified, is vomited, alone, or with thick, sticky, bloody mucosities;—with yellow or green bile, lumbrici, &c. If, at the same time, the belly is pained and contracted, with prominence of the hypochondriac regions—the existence of gastro-enteritis may be affirmed.

Repeated vomitings of stercoral matter, attended with anxiety and extreme suffering, occur, when a portion of intestine is *strangulated.* Vomiting frequently ushers in *hepatitis;* and when coincident with pain at the top of the right shoulder, and tension of the right hypochondre, the semeiological import is marked.

Vomitings symptomatic of organic degenerences, have a high significative value. Louis gives the details of many cases of softening, with thinning, of the mucous membranes of the stomach: in *three-fourths* of the patients so diseased, the disposition to vomit was so inveterate, that the mildest drinks, even pure water, exasperated the morbid irritability of the affected organ. In the first stage of cancer of the stomach, some aliments are preferred, while others, such as greasy or buttery substances, are rejected, comparatively unchanged. When vomitings obstinately resist every therapeutical agent, and become dark colored, as if mixed with soot and coffee grounds, the inference is, that the cancerous degeneration, is making rapid progress. Vomiting, *per se,* is not a distinctive sign of any known disease. It may be wholly absent in cancerous diseases of the stomach. In cholera, no symptom is more dangerous than the vomiting of whitish matter similar to rice water, or to water in which fresh meat has been washed.

Hæmatemesis, or vomiting of blood, is both idiopathic and symptomatic. Diagnosis, in cases of hæmatemesis, is obscured by many circumstances: 1°, Blood ejected during fits of vomiting may have been—swallowed. 2°, It may be the product of an exhalation from the stomach. 3°, It may be a bronchial exhalation, or the product of hemorrhage occurring in a tuberculous excavation. 4°, It may be the result of effusion from a ruptured aneurysm.

If hæmatemesis is suspected to be *feigned,* the nasal fossæ, mouth, and pharynx, should be examined. Blood is only *accidentally* swallowed by children. As to hæmoptysis being apt to be confounded with hæmatemesis, the expectorated blood presents different distinctive characters, as, a vermilion color and a frothy appearance; and its expulsion is generally preceded by a bubbling or gushing sensation in the chest: moreover, expectoration may produce sputa tinged with blood.

Vomited blood is generally mixed with alimentary and bilious matters. Bloody stools are not infrequent in such cases. Negative as well as positive appearances being attended to, will serve to precise the diagnosis. In the majority of instances, stomachic hemorrhage is symptomatic of the most serious affections.

Intestines. The exploration of the intestines should consist also, in *palping,* and in *percussing,* with great care; and also, in appreciating the grade, and nature if possible, of the functional disorders. To palp and percuss with advantage, the position occupied by each viscus should be known and considered. For instance, the angle of the reunion of the arch of the colon with the descending colon, is formed in the left hypochondre. The student from this circumstance should be instantly aware of the cause of the difference of sound emitted on percussing different parts of this region. If percussion is practised high up, a clear sound is emitted, referable to the base of the lung; if much lower, a dull sound: and lastly, there is the resonant sound, emanated from the stomach and intestines. Very different and complicated sounds are educed by exercising Piorry's sound measurer over the right hypochondre, wherein exists the angle of reunion formed by the first with the second turn of the duodenum, and the angle of reunion of the ascending and transverse colon. Sounds called forth by percussing the different regions of the abdomen, vary according to the state of repletion and inanition of portions of the intestinal canal. When percussing the abdomen of a female, the position and condition of the uterus must not be overlooked. Nor must it be forgotten, that the precise locality of the abdominal viscera, fluctuates with states of inanition and repletion.

Palpation serves to discover the degree of sensibility possessed by a given region, and thence of the whole, of the digestive tube. In addition to the data furnished by percussion, the functional phenomena must be taken chiefly into account, with a view to advance, directly and by exclusion, to sound diagnosis and prognosis. The most common functional disorders of the abdominal viscera, are—1°, a strange sound, which the Greeks named *borborygmy, (borborugmos,* from *borborudzo, βορβορύζω, I make a rumbling noise).* Hypochondriacs are teazed with it; and so appalling is the gurgling and rumbling, (consequent upon wind suddenly passing from one portion of the bowels to another,) that some females who are subject to it, are thereby rendered sources of discomfort and annoyance to themselves, and to the ears and feelings of society. 2°, The course of the excrementitious portion of the aliment, may be unusually accelerated—in which case, the patient is said to have a *looseness,* or *diarrhœa;* or if retarded beyond the usual period—*constipation.* Lastly, the transit of the fecal matter may be wholly arrested, as when any portion of a bowel is strangulated.

Diarrhœa, when moderate and unattended with pain, is not a menacing symptom; but it becomes more serious when there is heat, and a sensation of scalding at the anus, with straining and *tenesmus.* Diarrhœa threatens to pass into dysentery, whenever the straining expels only a small quantity of bloody mucus. Complete and permanent obstruction to the passage of the excrement, is an extremely dangerous symptom. Death is the inevitable result—if a free "passage" be not restored, or the feces dislodged, either by the natural conduit, or by the establishment of an artificial anus. The usual course of symptoms in irremediable cases of absolute obstipation, is nearly this: nausea, hiccough, excruciating pains in the bowels: these are followed by vomiting first of food and drink, next of bile and mucus; and lastly, portions of excrement are discharged by the mouth, with increasing anxiety and prostration, terminating in death.

The excrementitious matter is various. It may be mucous, resembling white of egg; or, it may consist of imperfectly digested aliment, &c. It may be streaked with blood; or the stools may consist of pure blood, liquid, or coagulated. Purulent matter may be mixed with the feces—signifying a very advanced stage of chronic inflammation, or ulceration, of the intestinal tube. Further: the excreted matter may be liquid, and at the same time, present the appearances of rice and water—a characteristic and a generally fatal sign when associated with cramps in the legs, blue skin, &c., in malignant cholera.

Liver. Palpation, percussion, and the appreciation of the existing functional disorders serve to correctly disclose the nature of numerous diseases to which this organ is subject. The nature and seat of pain, the state of the general system, the color of the integuments, and of the feces and urine, must be duly noted. *Puncturing* the most prominent portion of the liver, in certain cases, is an extremely valuable means of exploration, as it also is of treatment; but great circumspection is necessary in resorting to it, though hepatic abscesses and cysts, when dexterously punctured, are frequently cured. The chief morbid structural changes of the liver are, atrophy, hypertrophy, softening, the formation of cysts, tubercles, abscesses, hydatids.

Spleen. The clinist should attend to the bulk of this viscus, as ascertained by exploration. It may be immensely developed without the actions of the neighboring organs being consequently disturbed. The appetite is extraordinarily keen in some cases of enlargement of the spleen. Preternatural softening of the spleen is characterized by no diagnostic symptoms: it is, need it be said, a very dangerous degeneration.

Symptoms furnished by the Respiration. Diseases of the respiratory apparatus, exist with, and without, appreciable organic changes. They may be referable, either to the aërial avenues; to the lungs; to the pleura, &c.: or they may exist in the diaphragm and parietes of the chest.

In health, the respiration is easy, equal, and unattended by *noise.* The number of inspirations and expirations, in a given time, has a general relation to the age, and to various modifying circumstances peculiar to the individual. There are, ordinarily, thirty-five respirations *per minute,* during the first, and twenty-five during the second year of existence. From puberty, onwards, ninety to a hundred inspirations and expirations are functionated every five minutes. Inspiration and expiration furnish numerous changes as regards, 1°, frequency; 2°, slowness; 3°, quantity of air, inspired and expired; 4°, difficulty; 5°, inequality; 6°, accompanying noise; 7°, qualities of the air expired. To these must be superadded—8°, the phenomena furnished by auscultation.

Dyspnœa means difficulty of breathing in general. When patients can breathe only when sitting in an erect posture, such form of laborious respiration is named—*orthopnœa*, if at the same time suffocation is threatened—*suffocating* dyspnœa: and if the motions of the chest occasion distinct pain, as in pleurisy—*painful* dyspnœa.

When the volume of inspired or expired air, varies, respiration is said to be *unequal.* The inspirations and expirations may be irregular, intermittent, or interrupted. In hysteria, and in the cold stage of agues, "la respiration *entrecoupée*," the broken sobbing respiration of french authors, may frequently be studied. It consists in the chest being dilated by a succession of inspirations, and contracted, in turn, by a series of successive expirations. The frequency of the inspiratory and expiratory acts, has a relation to the nature, intensity, and extent of pathological action going on, either in the respiratory, or in the circulatory apparatus. The breathing is deep and noisy—*stertorous,* in cases of cerebral compression; *whistling* in laryngitis; *suspirious,* or *sighy,* when, as in hypochondriacal and melancholic states, an interval of suspense succeeds a prolonged inspiration, expiration being, ultimately, abruptly and strongly functionated.

Breath. In states of intense systemic reaction, the breath is hot: during states of prostration and collapse, it is cold. When the respiratory avenues are coated with viscid mucus, the breath is nauseous, when nosed by bystanders. It becomes fetid when the mucous membrane is ulcered.

Upon applying the ear to the healthy chest, a certain noise—*respiratory murmur,* is heard. It is caused by the inspired air penetrating the ramifications of the bronchi, and the air cells of the lungs. The character of the murmur varies with the age of the individual, or, rather, with the development of the structure concerned in its production. It is more frequent and sonorous during infancy and childhood, than at puberty and manhood. When it occurs in a marked manner, in adults, it is characterized as being *puerile*. The respiratory and puerile respirations, or sounds, are more audible in certain parts of the lungs than in others—as, in their upper and lateral portions.

Absence of the respiratory murmur indicates (according to the concomitant symptoms) different morbid conditions of the respiratory organs. Thus, when its absence is transient and moveable, and associated with cough—pulmonary catarrh may, so far, be said, or suspected, to exist. If it is permanent and fixed, hepatization of the lung is so far *sign*ified. The murmur in question is suspended in emphysema, and various degenerescences of the pulmonary structure; and also, in liquid and gaseous effusions into the pleural cavities. Waiving its grades of intensity, the respiratory noise assumes various characters. When the bronchi or bronch*ules* enter or penetrate pulmonary excavations, the murmur becomes *tracheal*.

When fluid matter incumbers the respiratory avenues, the passage of air occasions noises of a different nature, named *râles*. In pulmonary catarrh, the transit of air through sputa, produces the mucous râle. There is *gurgling* when air passes through softened tubercles.

The *crepitating râle*, or crepitation, indicates the first degree of pneumonia, or hæmoptysis, or pulmonary apoplexy, or œdema of the lung: it is a sound similar to the decrepitation of salt.

The *dry sonorous râle*, or pulmonary *snoring*, sometimes resembles the noise produced by rubbing upon a bass string: sometimes it is analogous to the snoring of a person when asleep; or, lastly, to the cooing of turtle doves. It results from the passage of air through some pulmonary fistula, or into some dilated bronchial tube.

The *hissing, whizzing*, or *whistling râle*, consists in a kind of minute whistle, grave or acute, less or more resembling the sound attending the working of the piston of a pump: it may be heard during the first stage of catarrh of the bronchi.

There are many other varieties of *râle,* which are named accordingly. Numerous requisites, in addition to habit, are necessary, in order to precisely distinguish them. It is frequently extremely difficult to distinguish whether a râle is produced from a near, or from a remote, point, of the thoracic parietes: a kind of *trembling* sensation perceptible to the hand, when the lesion is superficial, may here aid the diagnosis.

Metallic tinkling is a precious symptom. It is a sound similar to that which results from the reiterated contact of a hard substance with a vitreous or metallic body. When heard, it is diagnostic of an excavation, filled with liquid and air, communicating with the bronchi. The respiration, itself, may be *metallic*—as happens in some cases of bronchial fistula. When a fistulous communication is established between the bronchi and the pleural cavity, with effusion of a liquid or gas into it, there is *metallic resonance* with *metallic respiration.*

Independently of these symptoms, there are others which consist in the different characters which the cough may assume, and which the products of expectoration present. Cough, be it observed, is not, in itself, a morbid phenomenon: in health, it less or more frequently occurs to effect the dislodgment of the bronchial mucus.

In cough there is constantly a momentary narrowing of the glottis, with a simultaneous lively and sudden action of the expiratory powers, so that the air, first compressed, is driven with violence sufficient to carry with it the sputa, and sometimes the false membranes, developed in the air passages. Cough is idiopathic or symptomatic, dry or moist. Authors have distinguished as many kinds of symptomatic coughs as there are important organs in the economy. Thus *stomachic* cough coincides with "*stomach* complaint," and yields to therapeutical means calculated to influence the digestive apparatus. The short dry cough which attends "*liver* complaint," is named, *hepatic.* Violent paroxysms of coughing, (scoticè, fits of *hoasting,)* frequently induce vomiting; for example, in the phthisised, and in children laboring under hooping cough.

It is important to know the sound of the cough which attends laryngeal phthisis, and especially croup. Let the junior pupil bear in mind, that it is of cough as of many other symptoms—by itself it affords only vague signs, but, taken in connexion with other symptoms, it materially contributes to the establishment of sound special diagnosis.

Voice. Symptoms equally important as remarkable towards the diagnosis of diseases of the respiratory apparatus, are furnished by the voice and its numerous modifications. When the voice becomes feeble or hardly perceptible in affections of organs unconnected with its immediate production, it is a *grave* symptom. Vocal changes most commonly depend upon the condition of the aërial passages: thus, it is acute and whistling in some anginas; *nasal,* in coryza; *hoarse,* in phthisis, &c.

Speech, in diseases of the apparatus of sensation, is frequently in abeyance; it is quick and keen in most cases of active mental alienation.

Auscultation of the Voice. In pneumonia, the character of the voice may be unusually and peculiary forcible, and heard as if at the end of the stethoscope where it is applied to the chest: this phenomenon constitutes *bronchophony.* It exists in hepatization of the lung; and also in connexion with masses of tuberculous matter in different states, and in cases of effusion upon the pleura. *Egophany* is a peculiar resonance of the voice, like the *bleating of a goat,* or resembling some of "Punch's" intonations. The voice seems not to be continuously transmitted along the cylinder: the sound is silvery, and emitted in successive jerks. In some perfectly healthy persons, this singular resonance is said to be audible on stethoscopizing that point of the topography of the chest corresponding with the root of the lungs. When serum, or pus, is effused into the pleural cavity, egophany may be heard throughout the entire course of a line proceeding from the centre of the scapula towards the sternum,—and to the extent of two or three fingers' breadth.

Egophany disappears when the pleuritic effusion becomes considerable: absorption of the liquid, therefore, may be *sig*nified by its return, provided other symptoms have disappeared.

Pectiroloquy, or chest-speaking, is a phenomenon more remarkable even than egophany. The voice seems to traverse the cylinder, and tells fully upon the ear of the examiner. Pectoriloquy is almost always a fatal symptom. It indicates that there is a communication between one or more pulmonary caverns and the bronchi. For reasons obvious to the morbid anatomist, pectoriloquy is most apparent and common below the clavicle, in the space between it and the edge of the trapezius muscle:—in short, where tubercles are most commonly developed. When there are many caverns, pectoriloquy is confused. It may suddenly disappear owing to the entrance to the excavation becoming obstructed with sputa, or softened tuberculous matter: in such cases, there is, generally, less or more gurgling, with râled respiration.

When the voice seems not to *completely* traverse the stethoscope, pectoriloquy is said to be "imperfect;" and, *doubtful,* when the voice, in other respects distinct, appears to be arrested at the thoracic extremity of the applied tube.

The products of expectoration should be attended to, as they supply information of great semeiological value. Sputa, consisting of *opaque, yellowish, greenish* mucosities, belong to the second, or secreting-excreting stage, of pulmonary catarrh. At the commencement of the disease just named, the sputa are *serous.* In pneumonia, the sputa are so viscid aud sticky, that the spitoon may be inverted without the contents quitting their adhesion to the sides of the vessel. Pneumonic sputa are generally less or more, mixed with blood; and then they have a rusty brown appearance, or their color may closely resemble that of the juice of prunes.

Measurement, in the diagnosis of chest affections, is a highly useful means of investigation. One side of the thorax should be compared with the other. For this purpose, an imaginary line, or an *inked* one—some practitioners are pleased to mark their patients—should be drawn from the spinous process of one of the dorsal vertebræ, to a medium point of the sternum. In pleurisy the *sound* is more developed, than the unhealthy side. When pleuritic effusion, or an internal tumor exists, the corresponding part of the chest is morbidly and perceptibly dilated. A *paper* measure is preferable to one of linen or calico.

Succussion, a most ancient practice, consists in submitting the patient to a sudden shake. It may develop a sound such as that which is heard on shaking a bottle half filled with water. This phenomenon announces the simultaneous existence of a liquid, with gaseous effusion into the pleural cavity.

Greenish and fetid fluid *sputa*, of a pronounced gangrenous odor, indicate a mortal affection — pulmonary gangrene. The bursting of a vomica, or the opening of a vast excavation, is ordinarily announced by so profuse an expectoration of pus, or of tuberculous matter, that the patient appears to be vomiting. So, too, when a pleural collection of pus escapes into the bronchi.

Expectoration is particularly copious in the advanced stages of tubercular phthisis. Patients afflicted with this disease, spit up purulent rounded flakes, which float, like cockles, amid an abundant and colorless liquid. In some cases the sputa are greyish, opaque, and homogeneous. Softened tuberculous matter in some instances supersedes the presence of pus; and, at a more advanced period, it is often difficult or impossible to determine whether, or not, there is pus in the sputa, or merely modified tuberculous matter. The expectoration of portions of false membranes, and even of entire sheaths of concreted albumen, to a certain extent, may be named, pathognomonic: occasionally, in croup, these tubes exactly display the form of the air-passages.

The symptoms elicited by percussing the chest must not be passed over in silence. True that the symptoms developed by percussion are connected with all the organs contained in the chest; but the special organs of respiration need only be percussed. In health, the fluctuating capacity of the chest yields a sound corresponding with its volume, the degree of the solidity of its walls, and the locality over which it is exercised. A dull and obscure sound is a symptom of the first stage of pheumonia: when clearer than natural, it indicates that the lung contains a more than ordinary quantity of air—as in pneumothorax.[1]

Investigation of symptoms referable to the apparatus of Circulation. Rigorous and minute investigation is necessary to exactly appreciate the symptoms furnished by changes, which disease induces, in the dynamics and statics of the apparatus of circulation. Where a common-place observer perceives nothing but a trifling acceleration of pulse, another practitioner may obtain numerous positive and important symptoms, and so detect the existence of diseases which the former perhaps, never so much, as suspected.

In health, the strokes of the left ventricle and auricle, are generally confined to the space between the fifth and seventh rib; while the strokes of the right auricle and ventricle are felt at the base of the sternum, and less or more throughout the epigastric region. The ordinary sound of the ventricles is dull and prolonged, coinciding with their diastole; whilst the auricular sound, which is sensible under the clavicles, is sonorous, clear, and similar to the noise of the valve of a pair of bellows.

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[1] [For details on the subject outlined in the text, in addition to the pocket tabular *exposés* of the signs of the diseases of the Chest by Drs. Williams and Hawley, various essays and monographs, recently published, may be advantageously perused. Those by Drs. Stokes and Williams are highly valuable. See also an excellent elementary paper in the Thirty-fourth volume of the Edinburgh Medical and Surgical Journal, by the lately-deceased Dr. J. Craufurd Gregory.

Dr. Forbes's successful translation of Laennec's work, sufficiently indicates the great fountain head from which successive essayists, monographists, and chartists, have derived their principles of mediate auscultation, in connexion with which they have supplied explanatory, critical, and amendatory remarks, of various degrees of utility.]

As to rhythm, (the relation of the normal contractions of the ventricles and auricles,) 1°, the ventricular contractions coincide with the arterial diastole, and produce a dull sound: 2°, This dull sound is instantly followed by a clear short sound, caused by the contraction of the auricles:—3°, there is a moment of repose.

To pass to the consideration of the modifications which disease may induce, in these different organic dispositions.

The *extent*, or space, over which the strokes of the heart may be perceived, may be considerable, but it takes place in a determinate order. It first of all extends on the left side, from the axilla to the stomach, and thence through the corresponding region of the right side. These circumstances almost always depend upon, and signify, dilatation of the heart with attenuation of the ventricular walls. Debility of the heart is also indicated by these symptoms, which may also be produced by induration of the tissue of the lungs, and by pulmonary excavations and different effusions.

When, on the contrary, the strokes of the heart are felt over a much less extent—increased thickness of the walls of the organ are to be suspected: and, when the strokes are felt and heard higher, or lower, than ordinary—the presence of a liquid, or of a tumor, in one of the sides of the chest, in the mediastinum or in the abdomen, is highly probable.

Strong and extended *impulse*, indicates hypertrophy of the heart: the shock may be sufficiently strong to be perceived at a distance, and even to raise up the head of the explorer.

Modifications of the noise, or *sound*, of the heart's action, serve to diagnosticate many affections of this important organ. The sound is *less* than usual, when the walls of the heart are thickened. Softening of the tissues is to be suspected, when diminished sound does not coincide with enfeebled impulse. Contractions of the auricles and ventricles produce sounds clearer and more sonorous than natural, when the parietes of the heart are attenuated. Other particular sounds, also caused by the systole of the heart, have been expressed by different comparisons. Thus, a grating noise, like that attending the rasping of a grater or file, *(bruit de râpe,)* occurs at the instant of its contraction. *Simmering* is a variety of the rasping sound. These noises generally result from a narrowing, or contraction, of the orifices, which is caused, either by ossification of the valves, or by the development of vegetations. Straitening exists at the mouths of the arteries, when these sounds coincide with the contraction of the ventricles. On the contrary, it occupies the auriculo-ventricular orifices, if the peculiar sounds attend the contraction of the auricles.

The *bellows sound, (bruit de soufflet,)* indicates no particular organic lesion of the heart. It seems to depend upon purely functional alterations of the organ, and is audible, one while, when the auricles, and, at another, when the ventricles or arteries, are being contracted: moreover, it may be continued or intermittent, and may disappear and reappear, without any appreciable cause.

Are not the explanations, hitherto offered, of many of the actions and sounds of the heart, in the highest degree doubtful? Much yet remains to be done in respect of the *correct* APPLICATION of the verified laws of SOUND in general, in trust-deservingly appreciating the physical conditions of the tissues of the organ in health, and also in fluctuating states of disease. Diagnosis, at the best, must from the nature of things, if chiefly grounded upon the *interpreted* nature of the sounds of the central organ of the circulatory system—ever be most fallacious, till more correct information is obtained, as to the probable laws by which, sounds, emanated from *merely* physical bodies, are modified by the influences of the element VITALITY, as superadded to, or associated with, the MATTER of *living* bodies.

No satisfactory evidence has yet been furnished, that pericarditis is declared by the sound entitled, from its resemblance to the crackling of dry leather, *craquement de cuir*.

Rhythm. A movement of the heart, accompanied with a dull sound isochronous with the pulse, marks the *contraction* of the ventricles; immediately afterward, a clear sound resembling the clicking or chucking of the sucker of a pump, announces that of the auricles; lastly, a short period of repose ensues—such, as was said, is the suite of phenomena, to which the term "rhythm" applies. This order is modified by disease. Sometimes, it would seem as if a double contraction of the ventricles, masked that of the auricles; and the period of repose may be extraordinarily prolonged. The latter phenomenon has been ascribed to hypertrophy of the ventricles.

What is said respecting the bellows-sound applies to some disorders of the rhythm. For instance, the systole of the auricles may anticipate that of the ventricles. Again, there may be two or three contractions of the ventricles, for one of the auricles; or two or three auricular contractions for one ventricular systole. All this may exist, without there, ("*therefore*,") being any determinate relation between these disorders, and a uniformly observed organic lesion of the circulatory apparatus. The most violent and disordered palpitations, as every one knows, may exist unconnected, (which is every thing, in respect of the matter in hand,) with any *appreciable* lesion of tissue.

Aneurysms of the Aorta require the most minute and attentive exploration. When their existence is suspected, the region of the sternum should be auscultated, and also the spaces between the first ribs of the right side. Pericarditis, when suspected, should be no less carefully investigated. Its symptoms are generally obscure: the anxiety, disposition to faint, or actual syncope; with the irregularity of the pulse, and its want of keeping, with the tumultuous action of the heart; and, also, the indescribable feelings of discomfort complained of by the sufferers,—must all be taken into consideration.

Pulse. We come to another order of symptoms, to which much greater value was attached by ancient, than is by modern practitioners—that of *the pulse.*

It is difficult to determine the number of pulsations, which are observed in normal states of the various epochs of life. The pulses of some people in perfect health beat only twenty-five or thirty times per minute. From sixty to seventy-five in the minute, may be said to be the mean number of pulsations, as observed in healthy adults.

In disease, the pulse is quick, or slow; hard, or soft; great, or small; feeble, or strong; irregular, unequal, confused, thready, insensible, &c. Infrequency of pulse, generally speaking, is an unfavorable symptom: it is observed in malignant fevers, and organic diseases of the heart. The pulse is accelerated in almost all acute diseases: it is the ordinary indication of general systemic reaction. When the pulse beats oftener than one hundred and twenty times in a minute, the sign is, so far, unfavorable.

The pulse may be naturally irregular. During disease, however, the healthy irregularity, so to speak, in such cases, is not regular. When there is a prolonged pause between the pulsations, the pulse is said to *intermit.* An intermittent pulse usually attends organic disease of the heart. During indisposition, the pulse of some females becomes less or more regular, although decidedly intermittent, when they are enjoying the best health.

Authors have treated, at great length, of many insignificant states of pulse.

Veins. In varicose aneurysm, the pulsations of the tumor, are isochronous with those of the brachial or radial artery. The veins around cancerous tumors become swelled, and remain dilated. Permanent dilation of a vein constitutes *varix.* Blood is extravasated, in many traumatic lesions. *Petechiæ* indicate an extreme state of debility, in fevers. *Cyanosis,* or blue skin, may depend upon various circumstances—as, the foramen ovale, or the *hole of Botal,* remaining open; or, it may be owing to a perforation, or rupture, of the partition separating the ventricles of the heart. In every case, cyanosis indicates a most dangerous state of the apparatus of circulation. In the asiatic or malignant cholera, the skin may be livid, violet colored, or intensely blue—owing to stagnation of the cutaneous capillary circulation—ever, a most dangerous symptom.

Blood, after remaining at rest for a few hours, when abstracted from the system, generally separates into two parts—fluid and solid; the fluid portion, which surrounds the *clot* (insula), is named *serum*. At the commencement of phlegmasies, the serum is less abundant, and afterward, in the majority of cases, the *crassamentum*, or clot, becomes proportionally diminished, according to the frequency and extent of the blood-lettings instituted. In some affections, the serosity becomes greenish or yellowish. The clot commonly takes the form of the vessel in which the blood is received: it is, for the most part, as unusually consistent in inflammatory, as it is remarkably soft in scorbutic diseases. The surface of the clot is often covered with an inflammatory or pleuritic film—the *buffy coat*, of authors—which is well exemplified in blood drawn during inflammations of the chest, articular rheumatism, and in the phlegmasies generally.

Symptoms furnished by animal heat. The temperature of the system may be generally or partially increased, continued, intermittent, or periodical; with different degrees and characters severally designated as dry, acrid or burning, pungent, &c. It is characterized as *halitous*, when it is moist; and as *free*, when it is similar to that which attends states of health.

Habit and attentive observation, with frequent comparisons between sane and morbid heat, in different states of health and disease, are necessary for the correct appreciation of pathological heat. The best, it may be said the *only* instrument, which can be advantageously employed, is—the hand. The thermometer is all very well, in its way; but, it can afford only an imperfect idea of the elevation of animal heat, and is altogether inadequate to make known, and to aid the appreciation of, other modifications, which alterations of animal temperature may present.

The chief modifications of heat in states of pathology relate to four points—1°, augmentation; 2°, diminution; 3°, abolition; 4°, perversion. To ascertain these changes, the practitioner should apply his hand, at a medium temperature, to various parts—chiefly to the extremities upon the face, chest, and belly; as well as upon the seemingly affected region.

A sensation of cold ordinarily attends the invasion of most diseases. According to its intensity and character, it is named *chill;* or *horripilation,* if accompanied with goose skin; and *shivering* or *rigor,* when accompanied with trembling.

The sensation of heat may be perverted. Parts, whose temperature is elevated, may be cold to the patient, whilst other parts, which are cold to the feel of the practitioner, may be complained of by the sufferer as scorching, as in congestive fevers, *e.g.* cholera.

Symptoms referable to states of the exhalations and secretions. In certain diseases the *transpiration,* or insensible perspiration is increased to the degree of *sweat.* It may be *general,* as in phthisis; in which it is frequently excessive upon the forehead, neck, and chest. Sometimes it is partial, as in indigestion. At other times it is *colliquative,* i. e. excessively profuse, giving rise to great debility and marasmus (chronic diseases): further, it may be, at one time, *chilly,* at another, *scorching.* Generally speaking, it is *colorless;* nevertheless, it may assume a yellowish or reddish tint, and become very acid, viscid, thick, &c.

The *mucous* secretions are diminished in the first, but flow profusely in the second stage of catarrhal affections. *Mucus* may present numerous varieties, in respect of color, consistence, odor, taste, &c.

The *serous* fluids are sometimes wholly suppressed: they may be augmented, and occasion effusions.

Various distinctive characters are presented by the state of *tears*, the *saliva*; and especially by the condition of the *urine*.—Thus there may be *incontinence*, or there may be difficulty *(dysuria, strangury)* in making water: its excretion may be impossible *(ischuria, retention of urine)*. It is *cold* in some grangenous inflammations—*colorless* in nervous affections—*red*, "high colored" in inflammations—*saffron tinged* in bilious maladies—less or more turbid like that of a *mule*; or *oily*, *stringy*, &c. It is frequently covered with a very thin *pellicle*, or loaded with *mucus*. Lastly, the precipitate, *deposit* or *sediment* may be reddish, greyish, purplish, flaky, &c.

III. CHANGES WHICH DISEASE INDUCES, IN THE CONSERVING FUNCTIONS, PROPERLY SO CALLED—THOSE OF REPRODUCTION.

Symptoms referable to the genito-urinary apparatus. Of all the urinary organs, the *kidneys* are those whose exploration demands the greatest care. From being deeply placed, and surrounded by many viscera, their physical changes are appreciable with difficulty; and hence the frequent necessity of burying the points of the fingers under the false ribs, on each side of the vertebral column, in order to attain their otherwise imperfect and very obscure palpation.

Percussion of the kidneys in health, educes a heavy sound: their normal *sensibility* is at a low figure,—but when increased by disease, its degree and extent must be ascertained, by palping and percussing the lumbar region, and the trajects of the ureters as far as the rectum: the condition of the perinœum, testicles, and the urethra, onward to the extremity of the penis should also be explored.

Palpation and percussion are more available in ascertaining the different morbid states of the *urinary bladder*. Palping should be conducted when the bladder is empty, by plunging the digits, from above downwards, into the pelvis. When the distended bladder rises above the pubis, percussion serves to disclose its extent.

Catheterism should always be practised: precise notions can in no other way be obtained of the states of the urethra and bladder. The best means of knowing the condition of the *prostate* gland, is by inserting the finger, in the required direction, up the rectum.

Catheterism discloses the existence or non-existence of any material objects, partially, or wholly, obstructing the exit of urine.

The excretion of urine may be painful, or burning, as in acute blennorrhagia: It is sometimes difficult, unattended by pain, twisted, forked, or split into streams—as in cases of *stricture.* When the urine comes away in interrupted jets, calculus of the bladder may be suspected. When this important excretion flows, drop by drop, *strangury* is said to exist: *ischuria* designates the impossibility of voiding this liquid.

Urine, in itself, may be altered in its nature and properties, chemical as well as physical, as in *diabetes*—a disease in which the quantity of urine secreted is enormous. It becomes limpid, and as colorless as rock water, in hysteria; abundant and slightly colored, in asthenic diseases; lemon colored and even blood red, during the period of inflammatory febrile climax; saffronish in jaundice; and lastly, of a leaden darkness in some pestilential fevers.

The urinary secretion is diminished, or even altogether suppressed, in asiatic cholera. Attention should be paid to matters suspended in the urine, and to the various sediments, deposits, &c., which take place especially towards the close of acute diseases. Low specific gravity, as ascertained by an appropriate instrument, *in connexion with* coagulability of the urine on the application of heat, or the admixture of the proto-chloride of mercury, are considered, by some, as pathognomonic of Dropsy depending upon *Morbus Renum.*[1]

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[1] [See different papers in the Edinburgh Medical and Surgical Journal, by Drs. Christison and J. C. Gregory, in addition to Dr. Bright's writings upon this subject.

In the article Dropsy in the Cyclopædia of Practical Medicine, Dr. Darwall

In a semeiological point of view, it may be said that, the different states of urine, generally speaking, furnish very equivocal data. This liquid remains limpid and indigested, according to some authors, during the *increase* of disease; and when its ingredients are duly suspended, the *decline* of a disease is announced: lastly, a sediment marks the *termination* of diseases.

The exploration of the organs of generation, is necessarily quite different in the opposite sexes. In man, every thing is, in a manner, exterior, and naturally accessible to sight and to touch. In woman, the organ which is subject to the most numerous and important diseases—the *uterus*, is profoundly situated; and a particular study and the aid of appropriate instruments, are necessary for its due exploration.

The examination of the male organs may disclose various malformations, traumatic lesions, syphilitic irritations, inflammations, and ulcerations, with various other kinds of degenerescences.

The *body* and *neck* of the uterus are the important objects of exploration. The state of the former may be ascertained by palping the abdomen, and introducing the finger up the rectum, in connexion with the appreciation of the primary and sympathic functional lesions: touch, per se, or aided by the *speculum*, reveals the state of the latter. Special directions as to the proper manner of instituting the "*touche*," and of *speculuming* the uterus, in a delicate and professional manner, are given in approved elementary works on Obstetricy.

The neck of the uterus is subject to numerous lesions, in intensity, from simple catarrhal irritation to the most destructive and singular forms of inveterate disorganization. The uterus is liable to acute and chronic inflammations, with hypertrophy and transient or permanent

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appears to have overlooked the circumstance, that it is *low* specific gravity taken *in connexion with* the urine being *coagulable* by heat, and not upon either of these states of the urine per se, that a conclusive inference has been drawn of the existence of Morbus Renum, by Drs. Christison, Gregory, and others.]

pains. It may also be the seat of pedicled and non-pedicled tumors; anormal productions generally—funguses, polypuses, moles, &c. Blood, or mere exosmosed *serosity*, may be accumulated in its anterior. Finally, the *touche* enables practical men to more correctly appreciate the weight, mobility, degree of heat, and sensibility of this important organ—whose functions constitute *the* PULSE *of female health.*

The state of the *ovaries* and ligaments should also be physically investigated. When intumescence exists, let the student self-inquire—Is this a case of dropsy, or what is the nature of the mal-structure or degenerescence?

Let it again be repeated, that physical and chemical data, no matter how exact or how numerous soever, must be considered as incomplete, and, as such, not to be relied upon, as grounds upon which to rest an opinion as to the *nature* and issue of diseases, unless taken in subordinate connexion with the dynamical phenomena referable to the organs and apparatus implicated.

Among the functional lesions of the uterine system, are—catamenial derangement, *e. g.* amenorrhœa, dismenorrhœa, menorrhagia, &c.; lochial disturbances, mucous, puriform, sanguinolent, serous, and other runnings, &c. &c. The character of existing pain must be estimated.—Is it pulsating, gravitative, or lancinating? Does it extend down the loins, sacrum, and thighs? Does the venereal embrace occasion pain? Does the female complain of a sensation of constant weight upon the rectum, or a "bearing down," &c.? What is the condition of the mammary gland, and the physical and chemical states of its secretion?

Sterility in either sex may depend upon appreciable causes, such as vices of conformation. Again, its causes may be wholly unknown, or they may depend upon a want of adaptation between the male and female organs, or be owing to disgust, apathy, aversion, frigidity, or diffidence. Finally, sterility may be owing to no defect upon the part of the female, but be referable to utter *impotence, i. e.* inability on the part of the male, to effect the requisite insinuation, and so on. The male may be impotent and not sterile, sterile and not impotent, or sterile and impotent, simultaneously: the female may be sterile, but being naturally the recipient only, she cannot, otherwise than by a license, be considered impotent.

The *emission* of the sperm may be variously deranged, and attended with unusual circumstances. In urethral catarrh it is accompanied with pain. In some it occurs without an erection of the penis; and in cases of natural or acquired local or constitutional irritability, while straining at stool. With others, the seminal ejaculation is feeble or impeded, and instead of being discharged in jets, it dribbles from the lips of the urethra. Sometimes the seminal fluid, instead of passing along the urethra, flows altogether back into the bladder, whence it is excreted, commingled with the urine. The deviation in question depends upon a false direction of the ejaculatory conduits, which open into the urethra from before backwards—that is to say, in a direction contrary to the natural order.[1]

Great development of the virile member, is frequently any thing but a sign of vigorous constitution, or indicative of venereal prowess. In the antique statues of the ATHLETES, the development of the genitals was in a ratio, less considerable than that of the other parts of the frame. On the other hand, their volume is enormous in the case of those who abuse the pleasures of Venus. Precocious development of the male member, in children, invites the suspicion of the vice of masturbation being practised, or that a stone exists in the bladder, or that irritations and congestions are present in the lower belly.[2]

The venereal appetite may be morbidly augmented, in males, as in *satyriasis;* and in females, as in *nymphmania:* it may be diminished, as in almost all acute diseases; and it may be altogether in abeyance, as in sexual anorexia—*anaphrodisia.*

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[1] [*Chomel*, Elemens, &c. p. 346.]

[2] [Traité des signes des maladies: par A. J. Landre-Beauvais, p. 543.]

SECTION XII.

THE INVASION, DEVELOPMENT, AND PROGRESS OF SYMPTOMS IN GENERAL: THE DURATION, MODES OF TERMINATION, &C. OF DISEASES; AND OF CONVALESCENCE, RELAPSE, AND RECURRENCE.

Dans toutes les maladies il y a enchaînement de causes et d'effets, parcque ce qui n'était primitivement qu'effet, se constitue cause d'effets nouveaux ; toujours les effets se surajoutent aux causes.—*M. E. Fréd. Dubois.*

There are many combinations and successions of symptoms which it is important to study, (both for theoretical and practical purposes,) besides those on which the arrangements of classes and genera are founded.—*Dr. Alison.*

La marche des symptômes n'étant que le résultat des effets combinés des causes morbifiques et de la réaction organique, il est évident que ces modifications se trouvent, avant tout, dans ces deux sources. C'est ce principe qu'il fallait d'abord poser lorsqu'on s'est mis à rechercher quelles sont les circonstances qui paraissent avoir une influence marquée sur la marche des maladies: une fois ce principe connu, on va voir, que tous les faits observés se rattacheront nécessairement à ces deux ordres de choses.—*M. E. Fréd. Dubois.*

Symptoms considered in themselves. Sometimes only one symptom may exist, as in vomiting, deafness, epistaxis: most commonly, however, many symptoms present themselves in association. The manner in which symptoms are grouped together, constitutes the manifesto of the various affections to which organized living bodies are subject.

It is important not to confound the *primary*, or *local*, with the *secondary*, or *general*, phenomena, which attend disease. To illustrate what is meant, let the student suppose a case of pleurisy.—Redness of face, pain of the chest, headache, feebleness or debility of the intellectual functions, thirst, cough, dyspnœa, accelerated pulse, increase of the animal temperature, high-colored urine, and many other symptoms which may attend the disease during its course or a part of it—may be *simultaneously* observed: how important then it is, to isolate the primary from the secondary phenomena, in all such cases! The primary symptoms, in the supposed case of pleuritis, are, —the difficulty of breathing, and the cough: the secondary are—the increased color of the face, the augmentation of the heat of skin, &c. &c. The sensible changes presented by the inflamed pleura explain all the primary symptoms—such as pain, dyspnœa, cough; and the most satisfactory explanation may be given of the other symptoms: 1°, The pleuritic pain, and also, doubtless, the phlogosed state of the pleural membrane, reduce the patient to short and frequent inspirations.—2°, There is so intimate a relation between the functions of respiration and circulation, that any cause disturbing the one, necessarily influences the other: the frequency of these functions occasions the elevation of the heat of the skin.—3°, The elevation of the animal temperature increases the thirst, and renders the urine deeper colored, of greater specific gravity, and more charged with animal matter.—4°, The headache is sometimes caused by the violent shaking and convulsive expirations caused by the cough, which always exasperates it when present. On other occasions, however, headache seems entirely dependent upon the excited state of the circulation, the heat, and the horizontal posture, with other auxiliars.

But in the majority of diseases, the chain of causation, cannot be traced with any such degree of precision. The occurrence of secondary symptoms, in a vast number of diseases, must necessarily be attributed to what is somewhat vaguely, but nevertheless appropriately, termed *sympathy*. Between all parts of the body, in disease as in health, the most intimate associations subsist. The dynamics of one important organ cannot be disturbed without less or more disturbance being participated in by some other organ or organs.

All phenomena which are independent of primary lesions of the parts in which they seem seated, and which are exclusively referable to an intimate connexion between remote organs—a connexion inexplicable in its occurrence, otherwise than as affected through the media of changes in the distribution and properties of the blood, (influencing, or being influenced by changes in the moving powers of the vascular and nervous apparatus)—are expressed by the term *sympathy,* which thus briefly designates *the force which presides over the production* of the phenomena of *suffering-with,* which is the literal meaning of sympathy.

Hunter distributes the numerous phenomena referable to the fellow-suffering of organs, to three series; namely, those which occur in 1°, *continuous,* 2°, *contiguous,* and 3°, *remote,* organs. This division is much more simple, natural, and satisfactory, than any hitherto proposed.

Pain felt along the *entire* course of a nerve at the instant of its being pricked or bruised, is referable to the first groupe. Vomiting in peritonitis, dysuria, in hemorrhoidal and dysenteric attacks, exemplify what Hunter understood by *contiguous* sympathy. *Remote* sympathy consists in the fellow-suffering of organs which are either similar or associated in the production of the same function: it is also applied to that which takes place between parts having no apparent connexion. For instance, inflammation of one, may suspend the secreting action of the other kidney. Irritation of the womb may produce pain in the stomach, or in one of the breasts; vomiting attends some forms of cerebral disturbance; the pupil becomes dilated in worm affections; pain at the top of the right shoulder in chronic hepatitis, in the sole of the foot in certain forms of *prostate* disease, and pain referred to the knee in the early stages of morbid coxarius, are so many examples of *remote* sympathy.

The junior clinist should, next, particularly bear in mind, that all the symptoms which may be simultaneously or consecutively presented in the progress of a disease, are, for clinical purposes, not equally important. Some symptoms are *principal* or characteristic, others are only *accessary.* In peripneumonitis, or general inflammation attacking the air cells of the lungs, pain in either of the sides, however slight, and sputa scarcely presenting the rusty trait, are, nevertheless, principal or *cardinal* symptoms: whilst no matter how fierce soever may be the headache, or however red the urine—such are *accessary* symptoms, only.

Again, symptoms, by some authors, are characterized as *active* and *passive.* In pulmonary consumption, for instance, the night sweats, diarrhœa, cough, spitting of blood, aggravate matters from day to day, and perceptibly kill the unhappy sufferer by inches: these are active.

All symptoms do not appear simultaneously at the invasion of maladies. In those whose course is rapid, the principal phenomena are manifested, generally, about the third day from the *début* of the indisposition; but in diseases which run through their phases slowly—weeks and months, indefinitely, may elapse, before their pronounced symptoms become fully developed. During the progress of acute and chronic affections, accidental symptoms may appear. These, as is stated at page, 369, constitute *epi*phenomena, and differ from proper symptoms, merely in being adscititious, or not intrinsicly associated with the existence of the malady.

Symptoms of symptoms, and *symptoms of the cause,* are also discussed, in the writings of observing pathologists. Again, to take a case, for the sake of exemplifying the precept—that, *the symptoms of the Cause are accidental phenomena, which seem to depend*—not upon the existing disease, forasmuch as, it commonly exists without them—but, *upon the* CAUSE *of the malady itself. Ex. gr.* hæmoptysis, does not usually, but it occasionally does, attend general inflammatory fever. Accordingly, some pathologists, consider the blood-spitting or hæmoptysis, as the effect of the plethora which has given rise to the fever, and not as an effect of the fever itself. And further, should this hemorrhage be so profuse as to cause symptoms of *sinking*, such indications of sinking are termed, *symptoms of the symptom*. These distinctions are properly no longer insisted upon. All the coincident parasitical phenomena, occurring in connexion with the cardinal and accessary symptoms, with every propriety, may be designated *epi*phenomena.

THE MARCH OR COURSE OF DISEASES, *(morborum decursus,)* consists, in the mode in which the lesions that constitute them, and the symptoms by which they are manifested, are developed and succeed each other. Nineteen twentieths of organic lesions are not appreciable till after death; hence, it is only through the medium of the observed dynamical changes which constitute symptoms, and the alterations which such symptoms, from time to time, undergo, that the medical philosopher can trace and study the *Course* of Diseases—embracing, as the term does, their type, their acute or chronic form, the distinction of their periods, &c., with the examination of the numerous circumstances by which they are influenced.

TYPE. The *order* according to which symptoms are exasperated or reproduced, is, in pathology, styled type *(typus)*.

The type of disease may be, 1°, intermittent; 2°, continued: 3°, remittent: or 4°, periodic. Diseases whose symptoms appear, increase, diminish, or remain stationary, *without any interruption*, are said to be of a *continued* type.

When morbid phenomena appear and disappear *only to appear again*, but *at intervals*, less or more variable—their type is designated, *intermittent*.

Remittent diseases are those whose type indicate them as occupying a middle ground, between—" continued" anormal reactions, on the one hand, and " intermittent" pathological functions, on the other.

Lastly, when the returns of pathological functions take place regularly, the type is said to be *periodic*.

Intermittence is a phenomenon of which, as yet, it is impossible to furnish any satisfactory explanation. According to Pythagoras, it is a result of the law of harmonic numbers: Pythagoras's rationale is as good as any. Jackson, Gillespie, Balfour, Mead, and others, thought differently, and have ascribed it to the influence of the moon, "particularly," and to the periodical movement of the globe, "generally."

These and kindred somnambulizings, as explanations of the obscure by the obscure, are surely as satisfactory as the rationale of M. Roche; namely, that *the Intermittence of morbid* EFFECTS *is owing to the intermittence of the action of the palpable or occult* CAUSES *which produce them!* But the *why* with the *wherefore* of this "intermittence of the action," is still the Q. E. D.[1]

Waiving the unknown cause, there are essentially intermittent diseases, such as epilepsy, hysteria, hemorrhages, nervous affections, and the interesting order of fevers named—intermittents, by way of eminence.

In the phenomena which depend upon profound disorganizations, there are moments of comparative ease or respite, but there is no proper intermittence. Intermittent fevers differ very much as regards type: *e.g. quotidian, tertian, quartan, double tertian, double quartan,* &c. Intermittent neuralgies are very common; they may be complicated, or they may alternate, with each other.

Phlegmasies are almost invariably of the continued type. Their course is sometimes *remittent,* by which is meant, (according to Pinel,) as was said—a march intermediate as compared with the proper continued and the proper intermittent types. Thus, in remittents, as in intermittents, the disturbance sets in with a cold, hot, and sweating stage; and, as in the *continued* form, there are symptoms which uninterruptedly persist throughout their course.

Phlegmasies, occasionally, but very rarely, simulate or take on the intermittent form. In such cases, their phases are dependent upon some other affection as a complication. Mongellaz says, intermittent phlegmasies are never *pri-*

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[1] [Chomel, *Marche des Maladies,* pp. 362—3. Dubois, *Des Symptomes Considérés en eux-mêmes,* p. 121.]

mary: when they exist, they have been germinated by some previous intermittent febrile action.

In respect of intermittence, phlegmasies of the nervous system rank first; next, those of the vascular system. Hemorrhages occupy the third range of intermittents: like the phlegmasies, intermittent hemorrhages may be developed by, or follow, febrile accessions and intermittent neuralgies.

Precursory phenomena, prodromes, preludes, period of imminence, &c. Can any disciplined mind conceive living bodies in a state, neither of health nor of disease; or, can an interval, marked by *particular phenomena appreciable to the senses,* be conceived between the cessation of health, and the commencement of disease? It is nevertheless true, that there are authors who expatiate largely, and in earnest, (under what *they* term *precursory signs,* and heralds or *avant-coureurs* of disease,) upon the phenomena which are presented from the instant when the functions are observed to be no longer performed as in health, *up to* the moment of the pronounced commencement of the disease! This is clearly abusing things, and perverting terms. Just as, *in the nature of things,* there can be no combustion, where there is no combustible, and no life, where there is no organization; so there can be no symptoms where there is no disease. Or again, where there are symptoms, there must be disease; just as where there is life, there must be organization, with a disposition to be vitally acted upon, as an essential condition of vital manifestation.

In cases of poisoning of the system, as by infectious miasms, contagious emanations, and so forth, it is undeniable, that, in very many instances, there is *an interval of time* between the moment at which the seed, or agent of the constitutional poisoning, is implanted in, or applied to, the system, and that at which the first evidences of its germination or action, are perceptibly developed, or declared —by their attested effects: this admits of no question. But, although in such cases, the eventual cause of disease *was* for some time in the system, and being multiplied in the blood, or otherwise, during the interval in question; yet, it is not only obviously absurd, but altogether unnecessary for any conventional purpose, educational or practical, to apply the terms *prodrome*, *precursory*, &c., to any phenomena which are observed during such intervals, as it would be to apply them to the interval itself.

What is properly contended for here as the just view of the matter, will be apparent to the youngest pathologist, who will bear in mind, that DISEASE, according to its most general and most essential character, is—*anormal or pathological* REACTION *of the organizationism.* This is the unexceptionable view philosophically taken of DISEASE, by such pathologists as Reil, Cayol, Dubois, and others; and as such it is advocated throughout this volume.

To continue—and let the student mark the application, the presence of a foreign body, virus, or poison, whether animal, vegetable, mineral, or meteorological, in any of our tissues or organs, never can, per se, by any than miraculous possibility, constitute a DISEASE, i. e. a *pathological* FUNCTION or ACT. Suppose a case: A bullet is lodged in the infra spinous fossa of the scapula: its introduction causes a solution of continuity, and other physical (with it may be chemical) disturbances: these disturbances provoke reaction of the local and also of the general vascular and nervous apparatus—*there is disease.* But, after a longer or shorter period, supposing the foreign body not to have been extracted or expelled, the phases of local and constitutional reaction subside—the bullet no longer acting as an *etiological* agent, or if it do act as such, it is not pathologically responded to—there is, then, *no* disease. The bullet may remain *in situ*, and perfectly innoxious, for years—for life, and so long as it is *tolerated* without local or constitutional reaction being provoked by its presence, there is, be it repeated, no sensible pathological act—no disease.

Now, what has just been said equally and rigorously applies to such agents as viruses, poisons, miasms, and to all deleterious elements or matters which may remain for an indefinite time in an organ, or in the system at large, *without* provoking pathological irritation and reaction. The only difference—one quite insignificant in respect of the bearing of the illustration in point—is, that the introduction of the viruses, &c., does not produce, like that of the bullet, a solution of continuity and a *primary* structural lesion: as far as is known, they may remain latent and innocuous, either altogether, or for a time; or, they may be depurated from the system, almost immediately. Thus, then, *from* the moment the virulent miasmal or meteorological germ is deposited, *until* the first effects of reaction are manifested, there is—*no disease.* There is lodged in the system a virtual, eventual, and contingent *cause* of disease: nothing more can tenably be affirmed; for though an etiological agent is virtually present, its operation, as such, is dependent upon an association of *contingencies,* the summary expression of which pathological theorem consists in the position, that to the end that disease be produced, in addition to a stimulus being applied to a membrane, organ, or apparatus in a *living* body, there must *co*-exist, *adapted disposition* in the membrane, organ, or apparatus to be *pathologically* acted upon. And, accordingly, till there is *evidence* of the existence of morbid or pathological, instead of healthy or physiological reaction, there is no disease; but so soon as there is any apparent *symptom,* then disease exists; and such symptom cannot, (except by a perversion of names and things,) be styled a *precursor,* or attendant, of that imaginary condition, which, forsooth, is one neither of health, nor yet of disease!

Hence then, as will appear in connexion with the foregoing remarks, the introduction into pathology of the metaphorical but most appropriate term—*incubation,* is most justifiable. Incubation recognises the presumed virtual presence of an etiological agent (whether by being multiplied in the blood, or otherwise germinated in the fluids or solids) in course of *latent* development, up to a given point of *pronounced* manifestation; just like the chick *silently* hatched into evolution up to the point of active power required for its *chipping the shell,* and thereby *sensibly* manifesting its existence by an unequivocal act. Such is the meaning of "incubation" in pathology. The instant, however, that there is any morbid *phenomena* referable to the *so* appreciated causation of an incubated poison, such *sig*nificant coincidences or symptoms, (for phenomena —if *morbid*, are "symptoms,") are really and truly not prodromes, in the arbitrary untenable sense of the epithet, but in reality the first sensible evidence of the existence of anormal reaction of the organizationism—i. e. disease.

Wherever, therefore, so styled *precursory* SYMPTOMS, "HERALDS," "PRELUDES," &c., exist, DISEASE exists: there can be no shadows without substances.

Development of Symptoms.—In respect of intensity, no trustworthy opinion can be grounded upon the first sensible phenomena of diseases. A malady may set in with the mildest symptoms, and speedily run on to a fatal termination. The contrary holds equally true: the mildest inflammations may be ushered in with the most appalling symptoms.

Many divisions have been established, by authors upon animal pathology, as regards the course of general disease. The literature of the subject has been disposed of under the conventional divisions of *periods, degrees, stages,* &c. &c.

What is the value of such terms? By *period, (periodos,* περίοδος, *circuit;* ὁδὸς, signifying a *way* or *course,* and *peri,* περὶ, *around,)* Chomel understands—each of the phases, or *grouped appearances,* through which diseases successively pass.

Between periods and degrees, there is the greatest difference in pathology. To properly say that a period has been established and is succeeded by another, of necessity supposes that new occurrences or new symptoms have succeeded those of the first period, and *without constituting a* new *disease:* in other words, there must be a close analogy between the suites of symptoms, which, though so far different, nevertheless depend upon the same causes. Symptoms again, which are referable to essentially identical conditions, differ from each other only in *degree.*

A burn exemplifies periods and degrees. For instance, *periods* in respect of the succession of the symptoms, as those, 1°, of inflammation; 2°, suppuration; 3°, granulation with contraction—cicatrization: and, to consider only the growing intensity of the symptoms attending scalds and burns—*degrees*, according as they result from mere injury of the skin, or, that extending to the subcutaneous cellular tissue, muscles, &c. But to take a functional disease,—one not primarily and structurally produced by chemical or physical causes:—In hypochondriasis, if we attentively analyze and digest complete biographies of the disease, three distinct periods will be found to exist. The first is characterized by a peculiar anormal state, with slight functional disturbance. The second, by nervous affections, sufficiently various it is true, but all impressed with the signet of "the blue devils." Lastly, the third, by organic alterations equally as varied as the neuroses, and like them subordinated by the hypochondriacal element. Thus, then, there are three *periods*, because analogies exist between the three orders of relatively different lesions, and all are under the general influences of the causes and successional influences of this disease. In hysteria, there are degrees only, and no traces of periods.

The distinction between degrees and periods is insisted on by Dubois, as being of great moment in pathology. The disagreement among authors as to the number of periods which should be recognised in disease, has arisen from the difference in question being overlooked. Some say that there are four periods in all maladies: others recognize five: Beauvais and Chomel admit of only three—1°, the increase; 2°, the crisis; 3°, the decline. Now be it observed, that were there only an increase and a diminution of symptoms, there could be degrees only, and no periods. The fact, however, is, that there is no determinate *number* of periods and degrees in even any individual disease: those of no two cases precisely tally.

Degrees are variable, and arbitrary. The disease appears, augments, and the physician may *make* as many degrees as he pleases; but the periods, if they exist, in due time are made manifest; and there is scarcely any difficulty in recognising their lines of demarcation. There are some diseases which so distinctly and uniformly manifest a series of periods, that if any of them be absent, the malady in question may be pronounced *truncated, incomplete, aborted,* and so forth.

Intermittent fevers may be instanced. The epithet *stage* is applied to each of the three suites of phenomena presented by this class of diseases. First of all, there is the *cold* stage, or the period of concentration; next, the period of expansion—the *hot* stage; and, lastly, the period of relief, or the *sweating* stage. In ague there can be no doubt of the existence of periods,—the cold, hot, and sweating stages severally present a new scene and new actions.

The increase, acme, and decadence of maladies, fluctuate in respect of their phenomena and duration, according to the *states of the organizationism,* and the nature of the various hygienical and pathological stimuluses which are applied to them.

The *invasion (initium morbi)* is said to be much more appreciable in "acute" than "chronic" diseases. To appreciate this proposition, it is necessary to have these terms defined by each author according to *his* mode of viewing the matter, so that something like data may be furnished, as to what is understood by the *acuteness* and *chronicity* of diseases. Suffice it here to state, that no diseases are essentially acute, any more than essentially chronic: such distinctions are purely relative—relative to *eventual* DURATION.

There is another word, which has been expatiated upon—*increase, (incrementum,)* or the indefinite space of time during which a disease seems to be pursuing an *ascending* route. All that can rationally be advanced on this head, is, that symptoms may become more *intense.* Their number, and the degree of the increase of their intensity, is not a matter of nosology, or of arithmetical calculation, beyond that of special probability. The whole depends upon the fluctuating condition of the *living* acting and reacting organization.

Nearly similar remarks apply to the objectionable line-and-plummet manner in which the *acme,* or period of violence, has been arbitrarily laid down. The "acme," or climax is said to be characterized by *the greatest intensity* of the symptoms, and "sometimes" by the apparition of new phenomena of a less or more grave nature. It may be asked, (out of due respect for the *science,)* if there is any standard of measure as regards the intensity of symptoms—one sufficiently to be depended upon to constitute a determinate period? And further: how is the accession of "new phenomena" to be judged of? Again, how many maladies are there not, in which the conventionally assumed stages of increase, climax, and decadence do not exist by partisans' own showing? Some severe fevers, Chomel observes, are manifested in the fullest degree of intensity from the very first—"la période *d'accroissement* n'a pas lieu:" a man comes to the ground in a fit of instantly declared apoplexy, &c.

The number of periods varies in each disease, and in some diseases there may be none at all. It belongs to the province of special pathology to unfold the form, periods, degrees, &c., under which *each* disease is ordinarily presented to the notice of different observers. The circumstances which attend the action of etiological causes must now receive a passing share of notice, however limited such notice, unavoidably, here must be.

When instituting researches into the circumstances which seem to exercise a marked influence upon the progress of symptoms, this cardinal principle must never be lost sight of by the pathologist; namely, that forasmuch as the march of morbid phenomena is the result of the combined effects of *etiological causes* on the one hand, and of *organic reaction* on the other, modifications in the concourse and chronological sequence of symptoms, must be referable to these two influencing sources.

When the statics and dynamics of the human organization are in an anormal condition, the most ordinary stimuluses to healthy action frequently become operative as agents of disease. Accordingly, every agent in nature, whether in the world without, or in the world within *living organized bodies,* capable of exercising a hygienical or healthy, may also exercise a pathological or unhealthy, influence upon them.

Extremes of heat and cold powerfully influence the course of the phenomena of disease. Changes in respect of temperature, pressure of the atmosphere, atmospherical electricity, &c., though scarcely appreciable by the observed indications of the most delicately adjusted thermometer, barometer, and electrometer, may be painfully responded to, by the morbidly irritable system of the invalid.

Diseased action seems to occasionally alter, permanently, the temper, habits—in short, to revolutionize the entierty of the functions: and, in such a manner, as to render life anything but a blessing to those who may be unable to remove themselves to a congenial climate, where, from a combination of *alterative* influences, depending upon states of the atmosphere, and the CONSTITUTION of the inhabited locality generally, diseased action may cease, and convalescence set in and steadily merge into confirmed recovery.[1]

The course of symptoms, in all states of disease, is most materially influenced by the existing and fluctuating condition of the apparatus of nutrition. In what are termed "dyspeptic" states of the organs of digestion, the properties and distribution of the blood are impaired and deranged, and the nervous system becomes so morbidly susceptible, that the organism of this class of invalids is in a state of adapted predisposition to be acted upon by almost every etiological stimulus that can be named.

In addition to alternations of temperature, there are many other agents which modify the progress of the phenomena of disease. The beneficial effects of repose and suitable diet upon all maladies, are known to the most illiterate. The moon and stars, from the earliest antiquity, have been regarded as agents of a very operative character in modifying states of disease: it was upon a belief in lunar influence that the ancients have founded the system of crises. Ramazzini relates that an unusual number of persons attacked with an epidemic which prevailed in Italy, perished on the 21st of January, 1693—the epoch of an eclipse of the moon! The power of the imagination in states of indisposition must not, in such cases, as Arago observes, be overlooked in estimating the probable amount of sideral influence. Thus it is matter of history, that about the middle of the seventeenth century, immense numbers of individuals, *(by order of the* FACULTY,) were cooped up in "*properly heated,*" "*properly perfumed,*" and "*thoroughly closed*" apartments, with a view to escape the injurious influences of an eclipse of the sun, "qui arriva ce jour-là," as announced by the astronomers. On the authority of the *judicious* Petit, it seems that the consternation was so general and excessive, that there were more affrighted sinners fleeing to confession, than there were priestly ears to receive the extortion.[1]

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[1] [See the *eighth edition* of "An Essay on Indigestion, or Morbid Sensibility of the Stomach and bowels, &c., by JAMES JOHNSON, M.D., Physician Extraordinary to the King:" Also, the work on the Influence of Tropical Climates on European Constitutions, by the same author.]

Other things being as nearly similar as possible, diseases are much milder, and their duration shorter, when the sick are isolated, than when they are crowded together in hospitals. Exposure to the *night* air exercises a decidedly injurious effect upon the sick. Most morbid states are exacerbated during the night.

Periods of the day. Towards *morning* there is a tendency to a less or more profuse state of perspiration, and to a diminution of pre-existing œdema. The intensity of inflammatory symptoms seems to be increased at sunrise. Some periodical pains return about *mid-day.* As night draws on, a sense of discomfort is experienced by most invalids, with a disposition to fever and excitement of mind: this is well exemplified in pulmonary consumption—the patients becoming much more hectic after five o'clock in the evening, in northern latitudes. The greatest number of births and deaths occur between sunset, and the second and third hour after sunrise. During the night, the apparatus of *organic* life is disposed to act much more intensely than at any other period of the twenty-four hours. This fact did not escape the notice of the Stagyrite.

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[1] [Le judicieux Petit nous apprend en outre, que les ecclesiastiques, tant la consternation était grande, ne pouvaient suffire à confesser tous les effrayés!—*Dubois,* op. cit. p. 137. See also *Chomel,* op. cit. p. 374.]

In those organic affections whose progress is usually slow, and which admit of the sufferer pursuing his ordinary avocations, the effects arising from the vicissitudes of the seasons, fatigue, disappointment, the passions, &c., upon the march of symptoms, may frequently be traced. This holds especially true with respect to affections of the heart. When poor patients laboring under heart disease are received within the walls of a hospital, the severest accompanying symptoms—such as intense orthopnœa, infiltration of the members, &c., may again and again be observed to pursue a retrograde course, under the influence of rest, proper regimen, and the avoidance of the other exciting causes of these maladies.

The chain of symptoms is modified by the periods of life, temperament, pregnancy, and suckling. Maladies are infinitely more acute in the infantile and virile states of the system, than in old age, and in a state of impotence. Thus, eunuchs do not suffer from gout. The modifying influence of the *female* organization impresses upon disease and its symptoms a mobility altogether peculiar, and a remarkable tendency to assume the most strange anomalies. Symptoms which would be most alarming if occurring in the male system, may not be the source of the smallest apprehension to the experienced observer, when presented by female invalids. Pregnancy notably modifies the morbid phenomena of all chronic, and of most acute diseases: not only do rheumatic and nervous affections, eruptions, &c. cease, but the progress of even organic diseases of a severe nature, appear as if suspended by it. In females, the progress of consumption, though seemingly advanced to the last stage, has again and again been known to be abruptly arrested by pregnancy. The period of respite, in such cases, continues throughout the period of gestation; but the symptoms reappear with energetic activity, and prove fatal almost immediately after the womb is relieved of the organized product of conception.

The DURATION *of disease,* (morbi mora,) according to Chomel, is the space of time comprehended between its commencement and termination.

The duration of diseases can only be approximately known, because the point of departure, and also the epoch of cessation, are often very uncertain, and wholly inappreciable. Much discrepancy exists in medical writings, and has been multiplied most idly by those who have objected to the time assigned by preceding authors, to the duration of maladies, without defining or explaining *their* mode of calculating the time. For instance, some make the first *medical* "day" of a disease to terminate at sunset, no matter at what hour on that day the symptoms were first noted; and then the following days are calculated by them from sunrise to sunrise. Others, however, have gone upon the principle of dating the *first* day of the disease, from the *hour* at which the malady began—the second day being dated from the corresponding hour, after an interval of twenty-four hours.

Nothing is more variable than the duration of diseases. Those which exist only for a day or two, at farthest, have been named *ephemeral.* If the duration extends indefinitely beyond one, but within the fortieth day—*acute;* and those which are prolonged beyond the fortieth day—*chronic.* An infinitude of scholastic distinctions has been made: to treat of them would be to trifle with the science, and to abuse the reader's attention. The duration of the majority of pathological functions is altogether indeterminate and eventual—because, under the influence of indeterminate and eventual causes. There is no such thing as a *tendency to duration* in the NATURE of diseases. Duration is an accident of causality, entirely determined by—the persistence of etiological stimuluses, and the chain of what may be termed their (in *living* bodies) effect-becoming causes. The periods, which undeniably exist in many diseases, are then owing to what? To a *spécificité* in the CAUSES; and hence a *specificity* (to adopt the word from the french), in the succession and duration of the symptoms.

Look at measles, scarlet fever, small pox, and at that interesting pathological study—constitutional erysipelas: are there not many peculiarities in respect of their incubation, invasion, periods, and duration? It is because there is a *specificity* in their several causes. In other diseases, in which there is no specificity of a nature and kind, such as exists in the contagious exanthemata, there is an indeterminate eventuality,—first, in the nature; secondly, in the kind and mode of action, and intensity of the causes; and hence, thirdly, the eventuality of their otherwise indeterminate persistence.

The phases and duration of gout, dyspepsy, hemorrhage, inflammation of the lungs, and of the common autumnal cholera of Great Britain, are most variable and uncertain: but, in other diseases, there is a decided specificity, *ex. gr.* in the asiatic cholera, as characterized by its invasion, acme, and the strong constitutional tendency to spontaneous salutary termination generally apparent; and, as in the case of other specific diseases, there is in this congestive fever the same persistence of depurative action in the system—the same inefficacy or danger attending the administration of therapeutical means calculated to less or more abruptly arrest its progress. Similar indications, too, are suggested to rational practitioners, viz. to confine their interference chiefly to supporting the system under the constitutional struggle, and resisting any existing tendency to death, as it occurs.

The existence of previous diseased action, complications, and the treatment adopted, influence, less or more perceptibly, the duration, as they do the progress, of maladies.

Termination of diseases. Diseases, as enforced by Chomel,[1] may terminate, 1°, in health; 2°, in some other malady; or, 3°, by death. Dubois contends that diseases can alone with propriety be said to terminate, when organs, whose structure or actions have been impaired, have recovered, and phenomena forth the re-establishment of, their former integrity.

A section of six pages is devoted by M. Dubois to a running commentary on the views defended by M. Chomel upon this pathological question. However, as nothing either novel or striking is hinted forth by his remarks in addition to the minute description of death beginning at the lungs, in the way of asphyxy or deprivation of air—arising, as specially commented upon by Piorry, from bronchial phlegm. The following brief extract from professor Alison's work is subjoined, as more satisfactory. It embodies the most succinct and didactic exposition hitherto offered, in respect of—

The action of causes of sudden death. "The action of all causes of violent or sudden death may be referred to *two* modes of injury, which are, in some cases, perfectly distinct, although, in others, they are evidently blended. We cannot, indeed, arrange the causes of violent death strictly according to these differences in the mode of their action, because the same causes appear to act, under different circumstances, sometimes chiefly in the one way, and at other times in the other; but we can point out that their fatal effects are *always* produced, either by their *directly depressing or suspending the vital action of the* CIRCULATION,—or else by their *obstructing the* ARTERIALIZATION *of the Blood,* and, therefore, according to principles formerly stated," [see Outlines of Physiology, Sec. III. of Chapter IX. p. 151,] "*arresting the circulation at the* LUNGS."

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[1] [*Des divers modes de terminaison des maladies.* Elémens, p. 381.]

"We know farther, that the first effect, or what may be called, in general, *death by syncope*, or beginning at the HEART, may be produced in two ways: 1°, By a cause acting on the system after the manner of a Concussion or shock, depressing the vital powers by which the blood is moved; 2°, By abstraction, sudden or gradual, of the vital stimulus; and that the second effect may be produced also in two ways; 1°, By injury of the Nervous System, arresting respiration through the intervention of *insensibility, i. e.* producing *death by* COMA, or beginning at the *Brain;* and, 2°, By direct impediment to the access of air to the lungs, producing what is strictly called *death by* ASPHYXIA, or beginning at the Lungs."[1]

Convalescence is the term used to denote the conventionally considered intermediate state, between the cessation of a disease, and the restoration of health; or, to put the idea set up in the mind by the epithet, into another and perhaps less objectionable form of expression —Convalescence is said to *begin,* when the symptoms characterizing the given disease are steadily disappearing; and to *end,* when the free and regular play of the functions, constituting the usual latitude of individual health, is fully re-established.

Convalescence has been treated of as *true* and as *false.* The distinction is insustainable: convalescence may be uncertain, but it cannot be false.

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[1] [Consult CHOMEL's *Elémens de pathologie générale.* "Des divers Modes de terminaison des Maladies," from page 381 to 389, DUBOIS's *Pathologie générale,* "Terminations," Vol. I. p. 153 to 159; and *Outlines of Physiology and Pathology,* by Dr. ALISON, "Of the action of the causes of sudden death," from page 327 onward to page 347, where it is observed—"The tendency to a fatal termination in different diseases, and in different stages or circumstances of the same disease, is very different, and often complex; but is always susceptible of illustration by reference to the simpler cases of violent death. And it is of especial importance to keep in mind these different modes of fatal termination in those diseases (such as fever) which admit of the greatest variety, in which different dangers threaten on different occasions, and in which various kinds of treatment are recommended; *because,* it is *only* by *anticipating* the *kind* of fatal termination which is *most probable* in *each* case; that we can expect to be guided to a rational and scientific selection of remedies."]

The phenomena accompanying convalescence in purely local affections, and in slight indispositions, present nothing particular. It is otherwise in acute or chronic diseases, which, during their course, have deranged all the functions. In the convalescence of chronic diseases of this kind, the functions of digestion and locomotion are generally slowly restored; the *embonpoint* does not return until a yet more protracted period; and sometimes, particularly in advanced years, is even never afterwards, as it *was* prior to disease.

The phenomena which accompany convalescence from acute diseases, are much more numerous and remarkable. One of the earliest effects of the cessation of disease, is a sudden emaciation of the entire body—and particularly of the face, which becomes paler. This emaciation and pallor seem principally owing to the diminution of febrile symptoms, and of the animal heat in particular, which, even in the living body, occasions an increase in the bulk of parts. The re-establishment of the secretions may be one of the causes of the phenomena in question.—The sense of debility is then very pronounced: the convalescent's gait is unsteady; his first steps require great exertion—especially when descending an inclined plane, or hobbling down stairs.

The rapidity with which muscular strength is regained, affords the most certain sign of convalescence. The voice for some time continues feeble, and does not manifest its natural tone until health is fully re-enjoyed. The organs of sense may present various anomalies. The *morale* is extremely susceptible: almost all convalescents are disposed to lively emotions—as to hope, joy, &c.; but at the same time they are impatient and irascible. The energy of the intellectual functions usually returns in a ratio with the gradual approximation to health. With some, Memory, Imagination, or Judgment is in a state of real debility, which disappears but slowly: but with the greater number, these cerebral attributes are manifested with unimpaired integrity; the least effort, however, occasions fatigue, head symptoms, and even *leipothumia*, &c.

The digestive organs resume their normal actions less or more promptly. The tongue continues somewhat loaded. The appetite returns gradually, or it may be suddenly. To some convalescents, wine tastes as if bitter, and bread seems insipid. Thirst diminishes or ceases. Stomachic digestion *(chymification)*, in general does not keep pace with the return of the appetite. Hence the frequency of morbid irritability of the stomach and bowels —these organs being taxed beyond their existing powers of digestion; and inveterate indigestion, with its pandemonium attendants and sources of discomfort, is entailed upon the indulger. Nevertheless, some individuals from the first day after "getting *the turn*," without any sense of primary or secondary discomfort, eat and digest a considerable quantity of aliment; and, according to colloquial phrase—"never look behind them."

The bowels are generally sluggish, and the alvine evacuations dry and grey colored: on the other hand, there may be diarrhœa. During rest, respiration is free: it is somewhat short during motion. The pulse may continue accelerated for several days; but when other signs are favorable, mere frequency of pulse—in a state of system morbidly irritable—through very debility, should not mislead the practitioner to withhold from convalescents the food and stimulus which they require. Some convalescents are attacked with palpitations of the heart from the slightest causes: the veins of the inferior extremities become gorged, and towards evening, less or more œdema may be observed. Animal temperature is commonly diminished: many convalescents, even during hot seasons, shrug themselves up by the fireside through the day, and ask for extra blankets during the night. The susceptibility to the impression of cold and moisture declines as strength returns. Occasionally, urine is secreted in immense quantities, while, from the character of the costive stools, there would seem to be a sparing secretion of bile.

Excitement of the organs of generation constitutes one of the most remarkable of the phenomena of convalescence: ardent desires, lascivious dreams, and nocturnal pollutions take place. According to the testimony of various authors, old men, who have had no ejaculations for years, experience them while convalescing.[1]

At an advanced period of convalescence, the epidermis very frequently desquamates, and the hair partially falls off. The hairs which sprout again, have seldom exactly the same shade or form as the others; owing to which circumstance, an odd piebald appearance is presented by the crop and "head of hair" *(chevelure)*, of those who have experienced severe sickness followed by temporary alopœcia.

The duration of convalescence is most uncertain; it can only be approximately ascertained. Age; constitution; the kind and duration of the indisposition; residence, season and regimen—exercise the greatest influence upon its progress. The nearer infancy, the shorter the convalescence. Convalescence from nervous diseases advances rapidly; and, on the other hand, very slowly in diseases of the alimentary canal, *e.g. gastritis* and *enteritis*. Improper diet and clothing prolong or interrupt convalescence. It is matter of common observation, that recovery is much more prompt in Summer and Spring, than in Winter and Autumn.

Convalescence does not always settle down into complete recovery: it may be interrupted by the return of the departing disease, or by the active germination of some other, or latent, disease. This leads us to briefly notice what have been designated consecutive phenomena, or those functional derangements which persist, or appear in the wake of diseases.

Consecutive phenomena differ sensibly from convalescence; first, on account of their intensity; and, secondly, in being *confined to a* single *organ;* whereas convalescence, properly so called, is marked by languor of *all* the organs of the economy.

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[1] [Chomel. Double. Beauvais.]

Some patients after severe illnesses waste away to mere skin and bone. On the other hand, convalescents may be alarmed at the amazing corpulence with which they are assailed. The voice may remain hoarse; there may be complete *insomnia,* or sleeplessness; consecutive delirium; loss of appetite, imperfect chymification (*stomachic* dyspepsy), and a degree of constipation so obstinate, as to resist the most energetic, or appropriately modified cathartic medicines. Cough, hiccough, frequency of pulse, &c. sometimes remain after the other functions have resumed their ordinary exercise. Two phenomena, frequently manifested at the close of acute diseases, are excessive sweats, and profuse flow of urine. These symptoms occasionally alternate, until the strength is—not exhausted, but re-established; and should either of them be suppressed, exhalation into the cellular tissue almost always increases, and general anasarca is produced.

Abscesses, gangrenes, ulcers, hectic fever simulating pulmonary consumption, &c., &c., have been enumerated as consecutive phenomena; such sequelæ, however, should rather be termed consecutive *diseases,* than simple consecutive phenomena.

There is nothing uniform in the duration of consecutive phenomena. The feebleness or stiffness of a member, persisting after a rheumatismal affection, occasionally continues for life.

Relapse and Recurrence. When convalescence is interrupted by the re-appearance of the declining disease, a patient in such a case is said to have suffered a *relapse.*

By *recurrence* is understood, the return of a disease after the patient has been restored altogether, or as nearly as may be, to his usual latitude of health.

Relapses are commonly excited by some occasional cause, such as exposure to cold, error in regimen, excessive bodily exercise, undue mental exertion. In all affections, relapses are not equally frequent: there are some in which they never occur, as the contagious exanthemata. They are rare in peripneumony and pleurisy, and very common in intermittent fevers.

The frequency of relapses in intermittents has been attributed to the effects of the progress of these fevers—every one of which has a marked tendency to favor its own recurrence; and also to the kind of constitutional *habit* which the system seems to acquire when the paroxysms are for a long while repeated. A still more remarkable circumstance in the relapses of intermittents, is, that they almost always occur on the corresponding day and hour at which the paroxysms of the fever first appeared.

The symptoms which accompany relapses are nearly the same as those of the primary affections: there is considerable attendant debility, which adds greatly to the existing danger; their duration too, in general is longer, and when the life of the sufferer is spared, they leave him nevertheless, in a state of weakness, which may cease only at a remote period, or perhaps never afterward be completely dissipated.

Different diseases attacking convalescents, must not be confounded with *relapses;* neither must relapses be confounded with *recurrences.* The cause of recurrences appears to be, sometimes a particular predisposition, sometimes exposure to fresh, occasional, or specific causes. Rheumatism, for instance, has such a proneness to *recur,* that it is scarcely possible to adduce a single example of individuals being attacked only once throughout life: here there is a predisposition favoring recurrence. It is otherwise in those intermittent fevers which reappear each year in marshy localities: in such cases, it is a fresh exposure to the specific cause or causes, which provokes a return.

In rheumatismal affections, relapses are as rare as recurrences are frequent.

To conclude.—To the enlightened practitioner is there a subject of pathological study more intrinsicly inviting, than—that which, strange to say, has been so very generally neglected—CONVALESCENCE? It would be difficult to determine whether the ignorance or thougtlessness of the public, as evinced by their conduct to their medical attendants when convalescence sets in, operates most to the benefit or injury of the body of the profession. In one point of view, the result is decidedly beneficial, for disease and ulterior long attendances, certainly cannot otherwise than be increased by the most false and reprehensible of all kinds of spurious thrift here alluded to, as practised by what are termed the "heads" of families. From the adapted state of the system, all the functions and organs being in a "low state of vitality," and therefore *prepared* to take on morbid action, (not only during, but for some time after Convalescence has, to all appearance, become confirmed)—there is not a disease named in the catalogues of Nosology, which may not *then* be developed by the operation of otherwise trivial stimuluses. Yet, at this very time, when, with all the force of fact, it may be said that the watchful superintendence of a family attendant becomes truly most valuable, and when it may be the means of *preventing*, or checking while checkable, a world of misery inseparably connected with a re-visitation of bad health or confirmed valetudinarianism, —just, however, at this period, of all others, does a discerning public evince, by its acts, an anxiety to dispense with the much needed "attentions" of the practitioner. Reader, is it not so?

END OF VOLUME THE FIRST.

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